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ADDRESS.

A SHORT SKETCH OF THE HISTORY OF GYNECOLOGIC SURGERY.

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In the busy rush of professional work and daily practice, it will, perhaps, prove of benefit to take a glance backward and for a few moments study the early beginnings of our most glorious profession—glorious for what it has achieved, more glorious still for the charity which its individual members are daily distributing to the pauper sick throughout the world.

In most of the recent text-books of to-day one would imagine that surgery was almost entirely due to the invention and ingenuity of the various text-book authors, and that little or nothing is due to our illustrious predecessors in medicine. Many hundreds of years before Christ, medicine had made considerable progress, as shown by the inscriptions on the Egyptian monuments, as well as by the five medical papyri of very ancient date. On the walls of the Egyptian temples are found figure pictures representing the surgeon operating upon his patient; fillings of gold and false teeth found in Egyptian mummies show that dental surgery had made very considerable advance, even at this early day. Susruta, a Sanskrit work of uncertain date, written at least 500 years B. C., proves that the specialists were commencing to be recognized as important agents in the commonwealth even at this early date. Nail trimmers, ear borers, tooth drawers, and drawers of blood and lithotomists are mentioned among others. But medicine was at this time so closely allied to mysticism and confounded with the supernatural, that little scientific knowledge was realized until the time of Hippocrates, called the "great," born about 470 B. C. This man, who is justly called the "Father of Medicine," was supposed to be the direct lineal descendant of Æsculapius, a priest physician who founded an order of priest physicians called Asclepiadæ. These priests established several temples of health throughout Greece and Rome, built especially in the high places where the "air was wholesome," or at the medicinal springs. At these temples patients were received and treated somewhat after the manner of our modern hospitals.

In the beginning of the fifth century, B. C., there were three of these temples of special importance, namely: the temples of Rhodes, Cnidos and Cos. The last named is of particular interest to us, because it was here that the young Hippocrates received his education and grew to the renown which gave him the name of the "Great Hippocrates." He susceeded his father, becoming high-priest physician, in charge of the temple, and the head of the school of physicians, called the School of Cos. The course of treatment at these hospitals included baths, rubbings, shampooings or massage, restrictions of diet, the administration of drugs and occasional surgical operations, combined with religious ceremonials and music. It has even been suggested that animal magnetism and hypnotism were made to serve their part in effecting the cure of the patient. The extensive physical notes or histories of the patient, which were kept by the priest students, or hospital internes, show the desire for exact knowledge which these men were striving after. That Hippocrates studied these histories carefully is shown by his renown in all the civilized world for his great powers of accurate prognosis. His fame was so great that he was called at one time to Athens to stay the plague; again to Babylonia to treat the king of Persia, where he remained in attendance upon this royal personage, as resident physician, for several years.

To show the character and breadth of mind of Hippocrates, how free from errors of superstition he was, if you will pardon me, I will quote a few sentences from Francis Adams' translation of the original Greek manuscripts, where, in speaking of the "sacred disease," or epilepsy, he says:

"It is thus with regard to the disease called Sacred; it appears to me to be nowise more divine nor more sacred than other diseases, but has a natural cause from which it originates like other affections. Men regard its nature and cause as divine from ignorance and wonder, because it is not at all like to other diseases. But if it is reckoned divine because it is wonderful, instead of one there are many diseases which would be sacred. And they who first referred this disease to the gods, appear to me to have been just such persons as the conjurors, purificators, mountebanks and charletans now are, who give themselves out as being excessively religious, and knowing more than other people. Such persons, then, using the divinity as the pretext and screen of their own ignorance."

In regard to the knowledge of this man in both medical and surgical matters, I can but express to you the pleasure and surprise which I have experienced from reading his remarkable works. His knowledge of the effects of the physical surroundings of the patient, the effects of heredity and previous disease is quite remarkable. Pulmonary tuberculosis, as well as tubercular inflammations in other parts of the body, was recognized by Hippocrates. In surgical matters his works show a very considerable knowledge; especially is this true in reference to injuries of the bones, fractures and dislocations, to each of which subjects he devotes a book.

The accidents of the ampitheater and the Olmypian games probably furnished him with plenty of clinic material. Hippocrates speaks frequently of the use

of the elevators and the trephines in injuries of the head, and if I understand him aright, he also at times uses the trephine in epilepsy. Hippocrates advises and practices tapping of both the abdominal and the chest cavities for the purpose of withdrawing collections of fluid. Hernia in some of its forms was well understood by Hippocrates and his pupils. The treatment of the falling of the intestine into the scrotum by position, enemata and taxis, is described; he also speaks of the production of the omental hernia from straining of epileptic convulsions. That he was familiar with the symptoms of stone, both in the kidney and the bladder, is shown in several places in his writings. He describes the symptoms of renal calculus and the use of the sound in detecting stone in the bladder.

In the "oath" of Hippocrates, with reference to this very matter, he says: "I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work." The operation of lithotomy was at this time and for many hundreds of years after, not considered respectable, and was left with the same class of men who performed castration for the purpose of making royal eunuchs.

This "oath" of Hippocrates, to which it was common for physicians of later years to give their assent, is of interest in regard to the standing of morality and propriety, which it enjoins. It was more than anything else, however, a compact between the physician and his student, whom he promises to treat as a son and to instruct in all of the science of healing.

With regard to the diseases of women, displacement of the uterus and its treatment by pessaries, is understood to a limited extent. Medicinal pessaries for the treatment of uterine troubles, intra-uterine pessaries for the production of abortion are spoken of, but only to condemn. Ulcer of the cervix which is, as he says, "produced by parturition," and later, "when an ulcer heals, the neck of the womb is harder, smoother, and the woman is less liable to conceive." It is remarkable to me how near Hippocrates comes to the appreciation of laceration of the cervix in this description of his, for although ulcer of the womb was described and treated until the present generation, it was reserved to our own Thomas Addis Emmett to prove that such lacerations were, in fact, tears, and that certain of them could only be cured by trachelorraphy, the operation which was devised and practiced by Emmett in New York during the past thirty-three years.

Pyometria, or collections of pus in the uterus, is described by Hippocrates, and also dropsy of the uterus, which may have been the condition which we recognize as ovarian cyst. Hydatids of the uterus he also describes, which he believes to be caused by drinking marsh waters. Abscess of the uterus, which starts near the hip-joint and bursts at the side of the uterus, is, without doubt, our pelvic abscess, rising from suppuration of the ovaries or fallopian tubes, instead of the uterus, as he describes. He advises the treatment of this condition with tents for the promotion of drainage through the vaginal opening, much in the same way as drainage is secured to-day.

Rectal diseases were apparently very well understood, and the use of the rectal speculum; although the use of the speculum in the vagina is not mentioned, it undoubtedly must have been used, for without it his accurate description of the ulcers of the womb would have been impossible.

External and internal hemorrhoids, the treatment of hemorrhoids, either by strangulation with the ligature, or by searing with a hot iron, the hot iron being passed into the rectum through a canula, corresponds, as you see, very closely with the usual line of treatment of hemorrhoids to-day. Fistula in ano is accurately described, with the advice that the abscess be opened before it bursts into the bowel, if possible, but after the fistula has formed, he advises the dividing of it by the tightening of a ligature or occasionally with a knife.

Following Hippocrates the next surgeon of importance in history is Galen. He lived and practiced 150 years after Christ. He has given to us several very extensive works on the subject of medicine and surgery in Greek, the study of which will well repay the student of surgery to-day. That surgery had made considerable further advance at this time is shown in his accurate description of laparotomy for intestinal concretion—probably the condition which we recognize as intestinal obstruction. The incision he makes a little to the left of the median line just below the umbilicus. After exposing and opening the intestine and relieving the obstruction he completed his operation by an intestinal suture, probably of linen thread and a closure of the abdominal wound. Galen also gives a very accurate description of the operation which is so well known by the name of Cæsarean section. I have not been able to determine that the name is justified in the birth of Cæsar by this method, but it is not impossible that this was the case, for I find records of several well-known men of a somewhat later date who were saved by Cæsarean section upon dead women; as for instance, the philosopher Georgia, who was so delivered according to Valerius Maximus, and Pliny says that Scipio Africanus was also saved from death by this same operation. I understand that Galen does not advise the operation upon live women, but in ancient times and even to-day in the Catholic countries, Numa's law provides for the opening of the abdomen in all dead women who are large with child. Velpeau quotes M. C. Lang to prove that Nicholas De Falcon was the first surgeon to perform this operation upon a live woman. This was in the year 1491. The operation was greatly lauded and very much abused by the different authors of 200 years ago—certain men like Mauriceau, who wrote in the year 1700, condemning it as entirely unjustifiable and doubting the list of successful cases which were reported by his predecessors. Certainly the operation was much abused, for, as Velpeau says, it was as popular in France as bloodletting was in England. The operation soon fell into disuse on account of the great maternal mortality, only to be revived with great success under the present antiseptic regime.

With regard to the use of the forceps in childbirth, it is supposed that the ancients used some such contrivance in difficult labors. None of the older authorities give record of it, but in the ruins of Pompeii, in what is supposed to have been a physician's office, together with a rectal speculum, were found a pair of forceps which could only have been meant for obstetric work. In later years the forceps were invented by a young man named Chamberlens about the year 1655. The Chamberlens brothers kept the knowledge of the existence of the forceps and of their use a secret for quite a number of years. That this secret was profitable to them is proved by authorities who

claim that the older Chamberlens' practice gave him thirty thousand pounds a year, a very large sum for that early date. Chamberlens took his forceps with him to Paris for the purpose of selling them to the French government, but making the mistake that he could deliver any woman, no matter what the obstruction, with the forceps, he attempted to deliver a rachitic dwarf whom Mauriceau had said could only be delivered by Cæsarean section. Chamberlens of course failed, as well as his negotiations with the French government.

While speaking of obstetrics it may be of interest to know Mauriceau's opinion of the fertility of the women of the time. He says that although four children at a birth is generally conceded to be the limit, he reports many instances in which more were born at one birth and until the number reaches fifteen he seems to think that such records are just within the bounds of possibility, but when he arrives at the history of a certain Dame Marguerite, Countess of Holland, "who in the year 1276 was brought to bed with 365 infants at one and the same time, who all received baptism and died on the same day together with their mother," he confesses, and not without reason, that we have reached the domain of fable.

Vaginal hysterectomy. According to Velpeau, "Soranus, a Roman obstetrician living in the reign of the Emperor Hadrian, affirms that the uterus may be removed without causing death, as Themison," he says, "demonstrates in his writings"; and he even goes so far as to lay down the operation as a precept, for he recognizes without any reserve, that the prolapsed uterus should be extirpated if it is in a putrefied state and asserts that it has been in some cases excised entire with success. Several operators, among others Brengarius of Bologna, in 1507, describes the removal of the inverted uterus with a ligature. For malignant disease Patella was probably the first operator to remove the uterus. The operation was performed on April 13, 1812. According to Senn, Patella did not know that he had extirpated the entire uterus until he had examined the specimen after the completion of the operation. The patient died at the end of the third day. Senn says that J. C. M. Langenbeck, the grandfather of the Langenbeck of our time, living in Göttingen, made the first deliberate attempt for removal of the uterus through the vagina for cancer in the year 1813. Senn gives a long and very interesting description of this first operation, which was done, as all operations were at that time, without the aid of any anesthetic. In this operation the surgeon dissected the uterus out of its peritoneal coat without opening the abdominal cavity. His colleague, who was very gouty, toward the latter part of the operation gave up entirely and could be of no assistance. Langenbeck found it necessary to tie the ligatures holding one end in his teeth, and to stop the tremendous hemorrhage which followed the removal of the uterus by thrusting his closed fist into the cavity from which the organ had been removed. The patient apparently died upon the table, but later revived, and lived without return of the growth for twenty-six years. Langenbeck's assistant soon dying of the gout there was no one to corroborate his story and his report of the operation was never believed until the autopsy was performed twenty-six years after the original operation. The second operation for deliberate vaginal hysterectomy was performed in the year 1882 by Sauter. Billroth, Velpeau and others have given the credit to Sauter of first performing this operation, when it should rightfully belong to Langenbeck.

After the invasion of Rome by the barbarians from the north of Europe and the consequent downfall of the Roman empire, all scientific knowledge received a set-back from which it did not recover until the great renaissance in the fifteenth century. Medicine and surgery suffered with the other sciences, the Arabs and the Catholic clergy being the only ones to keep alive the ancient knowledge. The diseases of women suffered more than general medicine and surgery, because of the seclusion of the women by the Mohammedans and on account of the celibacy of the priests.

France was the first to revive the study of the diseases of women, and under such men as Ambroise Paré, who revived the use of the speculum forgotten since the days of Soranus; Recamier, who has given us the uterine sound and the curette; Jobert de Lambelle, who successfully operated upon vesico-vaginal fistulæ; Madame Boivin and many others, has helped to bring gynecology up to its present standing.

As Americans we can justly be very proud of our part in furthering all gynecologic and abdominal surgery. Ovariotomy, although it had been suggested and advised by John Bell, instructor in anatomy and surgery in the University of Edinburgh, was never performed by him nor by any of his students excepting the courageous Ephraim McDowell, of Danville, Ky. Young McDowell had graduated from the University of Edinburgh, had listened to the lectures of his preceptor and afterward lived with him as a student and assistant. Several years after McDowell had entered upon the practice of his profession in Kentucky he met with his first case of ovarian cyst. He suggested to his patient, Mrs. Crawford, the only chance of escape from her disease, and she accepted it without hesitation. This, the first operation of the kind ever performed, was done while a mob of enraged neighbors awaited upon the outside of the house the result of the operation, determined to lynch McDowell if his patient did not recover. Fortunately for him and for her the operation was crowned with success and she lived for many years. In 1818 McDowell prepared a brief report of his first three cases and sent it to the *Eclectic Repertory and Analytical Review*, published in October, 1816, in Philadelphia.

Mr. Lizars, associated with Mr. Bell in Glasgow, received a report of these cases sent him by McDowell and a few years later operated for the removal of an ovarian tumor in Edinburgh. Tait and others have tried to claim that Lizars was the first ovariotomist, but history will not bear them out. One or two operations had been performed before the time of McDowell's, but they were simply the tapping or opening of ovarian cysts with a knife, no attempt being made to remove the sack or to ligate the pedicle. Probably no other one operation since surgery became an art has done so much to save life and to alleviate suffering as has ovariotomy, and certainly all honor should be due to the father of ovariotomy who has had the courage to perform this operation.

Nothing that has ever happened has done more to develop surgery than the discovery of anesthesia. On October 16, 1846, Dr. Morton, a dentist living near Boston, having experimented upon himself and a few of his friends, etherized a patient at the Massachusetts General Hospital, making it possible to per-

form considerable of an operation without giving the patient any pain. That the dread of surgery to-day is bad enough we all must admit, but what could it have been before the days of ether and chloroform? It is certainly wonderful that so much was accomplished and that patients, and especially women, could be brought to the point of undergoing such terrible suffering as must have been inflicted by even the slightest surgical operation before the days of anesthetics. Gynecologic, and especially plastic surgery of the vagina, made very rapid progress after the introduction of ether. The two men in this country who have done the most to develop a high standing of American gynecology are Marion Sims and Thomas Addis Emmett, both of New York. Sims, when he was a country practitioner in Georgia, in an emergency needing a speculum, improvised one from a piece of malleable metal, from which grew the Sims speculum of to-day, upon which all of the perineal retracting specula are modeled. The use of the Sims speculum and Sims position allowed a thorough inspection of the vagina and made the cure of vesico-vaginal fistula a certainty, where before it had been the exception when such conditions were cured. Emmett, by his introduction of silver wire as a suture material, also greatly aided vaginal plastic surgery.

In the Johns Hopkins Hospital in the last few months investigations have been carried out to prove that silver has an inhibitory action upon growing bacteria. Perhaps this was one of the reasons why Emmett, with his silver wire, was able to secure such excellent results in distinction to any other suture material then in use. Emmett discovered the condition known as laceration of the cervix, and invented the operation for its cure which bears his name. His perineal operation is founded upon sound surgical principles, and so far as my observation has led me, every surgeon who has ever mastered this intricate procedure believes, with its author, that it is the only perineal operation.

Abdominal hysterectomy, which a few years ago was one of the most dangerous of all abdominal operations, has become to-day no more dangerous than ovariotomy was five years ago. This has been accomplished by the observation of another American, Baer, of Philadelphia. The old operation, in which the cervix was constructed in mass and fastened in the lower angle of the abdominal wound, where it was left to slough off, has been superceded by the intra-peritoneal treatment of the stump which consists of the ligation of the four arteries which supply the uterus with blood and the suture of a flap of the periotomy over the stump of the cervix, which is not constricted in any way.

One of the most brilliant recent advances in surgery must be credited to Howard A. Kelly, of Johns Hopkins. By the use of his ureteral specula and the placing of the patient in the knee-chest position, he has made it possible to see the entire mucous lining of the bladder and to catheterize the ureters upon sight, and even pass his long elastic catheters into the pelvis of the kidney itself, making possible accuracy in diagnosis and treatment which would not have been thought possible a few months ago.

You are entering or have entered upon the study of the most interesting of all human problems, the study of the secrets of life itself; that you may all attain your highest ambitions in your chosen profession is the sincere desire of myself and of all your instructors.

ORIGINAL ARTICLES.

THIERSCH'S METHOD OF SKIN GRAFTING.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Although a comparatively new procedure in surgery Thiersch's method of skin grafting has met with considerable favor among surgeons. Now that a sufficient time has elapsed to test the permanency of the earlier results, this method should be accorded a more prominent place in plastic surgery. Its field of application is limited to three conditions; 1, where one desires to prevent deformities produced by healing by granulation; 2, when large areas uncovered by skin are to be healed promptly; 3, where one desires to replace cicatricial tissue by skin grafts in order to restore the usefulness of the parts. The raw surfaces left by burns of the skin are, as is well known, slow to heal when left to the natural methods, and the contraction of the cicatricial tissue produced by the healing, frequently seriously disturbs the function of the part. This offers a very good field for the application of Thiersch grafts.

It very frequently happens after the removal of extensive tumors that it is impossible to draw the edges of the flaps of the skin together and thus a raw surface is left to heal by granulation. Such surfaces as these may very conveniently and with a great degree of certainty and satisfaction be rapidly healed by covering them with skin grafts at the time of the original operation or later.

Ulcers of all descriptions except syphilitic, uncovered areas left by sloughing of flaps and similar conditions afford a good field for this method.

Instances when skin grafts can with advantage be substituted for cicatricial tissue, are by no means uncommon. Discolorations of the skin such as "port wine stains," may be cut out and skin with a normal color be substituted therefor.

Much of the horrible deformity resulting from the removal of malignant growths about the face can be avoided by the use of Thiersch grafts.

The technique of the method is comparatively simple. An absolute essential is the careful preparation of the patient for the operation. The area to be grafted and the region from which grafts are to be secured (usually the skin of the thigh), must be thoroughly sterilized previous to the day of operation. When the grafting is to be done on old surfaces which have been bathed in pus for a greater or less time, it seems advisable to begin the sterilization of the ulcer several days before the time of grafting. For this purpose dressings saturated with carbolic or bichlorid lotion should be kept constantly in contact with the part. After the parts have been properly prepared for operation a sharp spoon is used for the purpose of scraping away the granulations which cover the ulcer. This layer of granulations is often surprisingly thick, but the sharp spoon should scrape all away until the firm base of the ulcer is reached. The edges of the ulcer, which are usually thick and indurated, should also be thoroughly curetted and a raw, bleeding surface left. After this has been done the oozing from the surface may be very satisfactorily

stopped by elevation of the limb and pressure from hot sponges. The Esmarch tourniquet has been recommended to control the oozing from the scraped surface, but experience has seemed to demonstrate the fact that the oozing which occurs after the tourniquet is removed and takes place under the grafts, thus lifting them off their bed of tissue, does harm, especially when dealing with an old suppurating surface. The blood-clot then seems to form an excellent culture medium for the pyogenic organisms and suppuration occurs early after the grafting, thus seriously endangering the success of the operation. In those cases in which an aseptic field is to be grafted, the objection to the use of the tourniquet would not be so serious a one. Nevertheless, its use is unnecessary for the reason that pressure and elevation of the parts is sufficient to bring about an early cessation of oozing.

After obtaining a dry surface upon which to implant the grafts, the next step is to cut the ribbons of skin. This is best done by means of a very sharp razor which has been ground flat on its under surface. The hands of your assistant are used on each side of the thigh in such a manner as to render the skin tense; then, with a sawing motion backward and forward of the razor, the upper layers of the skin are removed for a distance of an inch or two. The incision of the skin does not pass into the deeper layers; all that is necessary is to enter the papillary layer of the integument. As the graft is cut by the razor it will ordinarily fold up upon that instrument, and may be conveniently transferred upon it. The layer of skin is now spread out upon the surface to be grafted. This can be much facilitated by the use of a couple of probes, wet either in sterilized water or with the physiologic salt solution. Care should be taken to spread the graft out evenly upon the raw surface. In like manner other grafts are cut and applied. The edges of the grafts should overlap each other and also the margin of the surface. When covered completely with these strips of skin, the dressing should be applied so as to retain them in position. Various methods of dressing such surfaces have been recommended. Thiersch himself recommended that they be covered with rubber tissue. Later work in this line seems to demonstrate the fact that the nature of the dressings is not so important as was at first supposed. Most operators, following the lead of Thiersch, still adhere to wet dressings for several days at least after the grafting has been done. Other observers have reported excellent results from the use of dry dressings. It seems probable, therefore, that wet or dry dressings may be used at the option of the operator. It may even be predicted that here, as elsewhere in surgery, dry dressings will supersede wet.

One word as to the treatment of the areas from which the grafts are taken. Patients frequently complain most bitterly of pain and annoyance produced by these raw surfaces. The ordinary dressings are not well adapted for this purpose because of the irritation produced by the adhesion of the gauze to the raw, sensitive surface. The redressing is unpleasant and painful and likely to cause suppuration. The use of gauze saturated with sterilized oil, containing 1 per cent. of carbolic acid, has been found to be much more satisfactory both to the physician and the patient. Healing goes on rapidly and is painless. Ordinarily there will be no necessity for changing such a dressing until the surface is healed.

Various suggestions have been made for the purpose of simplifying the technique of this operation. S. J. Mixter in the Boston *Medical and Surgical Journal*, vol. CXXV, page 700, suggests the use of a roller and special knife for the purpose of cutting the grafts more accurately and easily. His suggestion in regard to raising the grafts from their bed by means of properly sterilized tissue paper is undoubtedly a good one, and saves the curling up of sections after they have been cut. The same method is used in dealing with large thin sections for microscopic use, cut with the microtome.

The thorough sterilization and preparation of the area to be grafted is of prime importance and should therefore receive very careful attention. Most writers condemn the use of a strong antiseptic after the surface has been curetted for fear its use may damage the capillary circulation. Some writers, however, advise its use after the surface has been curetted, as they believe its application may prevent suppuration. The plan has been adopted successfully. It would seem better, however, to wash away the excess of antiseptic with plain sterilized water before applying the grafts to the surface.

Dr. F. W. Murray in the New York *Medical Journal* of Feb. 4, 1893, calls attention to the peculiar keloid-like development which occasionally takes place between and beneath Thiersch grafts. It would be interesting to know whether this complication occurs more frequently in the negro race as does ordinary keloid. The author says nothing upon this point.

It is probable, from microscopic investigations which have been made, that the blood supply of the grafts is very speedily established and a firm union occurs within a very short time providing suppuration does not take place early. Suppuration later, after several days, does not appear to exert a very detrimental effect upon the grafts.

Occasionally at the time of the first dressing it seems as if all the grafts had died, but after a few days more it is seen that the grafts are still alive and are growing. Excellent results are sometimes obtained when it looks as if all the grafts had been destroyed.

In making skin grafts no fear need be felt about transplanting skin from a region in which hair is normally present to one in which it is normally absent. The hair does not grow in the grafts, because the hair bulbs are not included in the portion of skin removed.

Within a few weeks my colleague, Dr. Evans, placed skin grafts upon the bony surface of the skull after having cut away the external table sufficiently to provoke slight bleeding. These grafts took excellently and thereby an old exposed area of the skull was covered.

Syphilis seems to have a very blighting influence upon the vitality of skin grafts, and because of this fact skin grafting can not with confidence be recommended in the ulcerations produced by that disease. The possibility of inoculating persons with syphilis should be borne in mind when the grafts are taken from one person and engrafted upon another. Instances are on record where syphilis has been produced in this way. Other diseases might also be communicated in this way, and therefore it is wise, whenever possible, to take the grafts from some part of the patient's own body.

By way of illustrating the good results obtained by this method of skin grafting, I desire to report two cases representing two different conditions for which grafting was done. The first case illustrates the advantage to be gained by substituting skin grafts for cicatricial tissue. The second illustrates the applicability of this method to the covering of large defects caused by sloughing of flaps. It also incidently illustrates the fact pointed out by Francis S. Watson in the Boston *Medical and Surgical Journal*, Oct. 27, 1892, that it is unnecessary to curette the surface to be grafted providing it be covered by healthy, fresh, red granulation tissue.

Case 1.—Miss Grace L., age 18, had her right hand caught between hot rollers while at work in a laundry. The palmar surface was very severely burned and was allowed to heal by granulation. She came under my observation about one year subsequent to her accident. The contraction resulting from the healing had drawn the little finger down to about a right angle, and the thumb inward across the palm of the hand in such a way as to prevent its being brought into contact with the ends of the fingers. The index, middle and ring fingers possessed good motion, the superficial flexors being free from involvment. The palm of the hand was a mass of cicatricial tissue of low vitality. Superficial ulcerated points were present in two or three places.

As the patient was one dependent upon herself for her means of livelihood, and the use of her right hand was a matter of great importance, she was advised to have the scar tissue removed and its place supplied by skin grafts. This was agreed to, and on Nov. 17, 1894, the scar tissue was thoroughly dissected out in the palm of the hand and Thiersch grafts from the thigh were substituted. Dry dressings were used and the grafts took perfectly. After healing was completed the thumb could be approximated to the end of each finger and motion was excellent except in the little finger, where some scar tissue about the second interphalangeal joint was allowed to remain. The patient now makes her living by wrapping cakes of chewing gum. The nature of her occupation indicates that the use of her hand must be nearly perfect.

Case 2.—On Jan. 1, 1892, I made a double amputation of the legs of a man who had had these members crushed by a switch engine. As it was impossible to tell just how far the vitality of the skin was destroyed, the amputation was made a couple of inches above the apparent line of destruction. It happened, as is frequently true, that the tissues were injured higher up and consequently the flaps of each stump sloughed. Sufficient time was allowed for the proper clearing off of the sloughs and cleaning up of the extremity of the stump before an attempt was made to cover the surface. On the twenty-seventh day after amputation each stump was covered with skin grafts taken from the thighs. In this case the granulations were not curetted. The grafts were applied directly to the granulating surface. Everything did nicely and the raw surfaces were soon covered completely.

Beside the fact of giving this man better stumps because of the skin grafting, he was undoubtedly saved many weeks' time.

The process of grafting directly upon the granulated surface was at that time an experiment with me. The possibility of successfully implanting the grafts directly upon the granulated surface has since been abundantly proven.

I have purposely refrained from the consideration of the results in cases where skin grafting has been practiced upon the ordinary crural ulcers. This course has been adopted for the reason that it is extremely difficult to keep track of these cases after they have been healed. Several cases, grafted as long as three years ago, show no breaking down at the present time. Other cases have come under observation subsequent to complete healing under skin grafts with ulcerated surfaces present. As a rule almost without exception, the part originally grafted was not broken down, the ulcers having occurred at new points in the vicinity of the original ulcer. It seems probable, therefore, that these ulcers will recur in this class of cases so long as the cause for such breaking down is not removed. Skin grafting can not be looked upon as a radical cure in this class of cases. If the cause or causes of the original condition are not removed, we may reasonably expect ulcerated patches to appear from time to time. Where skin grafting is done for the relief of conditions other than that of leg ulcers, the results have not only been satisfactory but permanent.

THE DEGENERATE EAR.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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FELLOW OF THE CHICAGO ACADEMY OF MEDICINE.

CHICAGO.

Discussing the "stigmata of degeneracy in the aristocracy and regicides," I dwelt with most emphasis on oral and facial stigmata. I now propose to deal with an organ which in the opinion of alienists, biologists and criminal anthropologists, is most affected by degeneracy.[1]

Considering the wide range of variation in the external ear in closely related zoological families, such, for example, as the African and Asiatic elephant, this was to be expected. My own experience confirms that of the alienists and criminal anthropologists as to its occurrence in degenerate man.

It has been claimed that deformities are due to pressure by sleeping upon one side or the other and pressure of wearing apparel. This can scarcely account for excessive and arrested development, since most stigmata exist at birth and are exaggerated as the ear develops in size. Such being the case local conditions can in no case produce excessive or arrested development in cases other than those produced by traumatism. This arises from the fact that it is a cartilaginous organ extending from bony base without a bony framework for its support and with very poor blood supply. While it no doubt receives all nourishment necessary, yet its parts are so far removed from the great blood supplies that from any defect in the nerve centers of those which control the local blood supply, or from malnutrition, the parts become materially affected. As a cartilaginous organ the ear has no lymphatics, a fact bearing on the growth of the ear throughout life. That the ear is sensitive to vasomotor changes is verified by the result of extremes in heat and cold, emotional blushing and fatigue.

In dealing with the question, aural embryology demands discussion, since in it are outlined many future changes. Skipping evolution of the ear from the otolith of the fish to the ear of the mammal, human otic embryology alone requires attention. Minot points out that "before the end of the first month there appears around the external opening of the first gill-cleft a series of six tubercles, two in front on the hind edge of the first visceral arch, one above the cleft and three behind it. A little later a vertical furrow appears down the middle of the hyoid arch, in such a way as to mark off a little ridge

[1] I wish here to express my thanks to the following gentlemen for their kindness in allowing the privilege of visiting their institutions and compiling the statements given here: Major R. W. McClaughry, superintendent Illinois State Reformatory, at Pontiac; Hon. Z. P. Brockway, superintendent New York Reformatory, at Elmira, N. Y.; Mr. O. W. Nash, superintendent Cook County Poorhouse; Dr. Clark Gapin, superintendent Illinois Eastern Hospital for the Insane, at Kankakee, Ill., and Mr. Alfred Brisbois, photographer, for the use of photographs of prominent men.

which joins on to tubercle three and descends behind tubercles four and five. The second stage is reached by the growth of all the parts; the fusion of tubercles two and three and the growth of the ridge down behind tubercle five to become continuous with six. After these changes it is not difficult to identify the parts.

"Tubercle No. 1 is a tragus; 2 and 3, together with the arching ridge, represent the helix; 4, the antihelix; 5, the antitragus, and 6, the lobule; the pit between the tubercles, the fossa angularis. During the later part of the second month the ear changes in its proportion somewhat, in the irregular development.

Fig. 1.

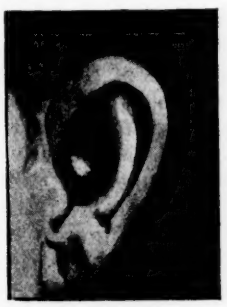

Fig. 2.

"The third stage begins at the third month. The upper and posterior part of the concha arises from the surface of the head and gradually but rapidly bends over forward, so as to completely cover the antihelix and the upper portion of the fossa angularis. During this stage in mammals the assumption of the pointed form of the ear commences.

"The fourth stage commences at the fourth month, when the tubercles which are now joined together by cartilages commence to unfold and are complete by the fifth month. Finally the sixth tubercle develops to form the lobule."

This unfolding or development of the tubercles to

Fig. 3.

Fig. 4.

produce the different portions of the ear and make it complete, is not unlike the development of a flower from the bud. By this process may be understood how, if by malnutrition in one tubercle or bud or another, or should there be a larger supply of nutriment in one than another, malformation of the ear would result. If arrest of development of all the tubercles should take place at any period from the first to the fifth month of fetal life, the ear would resemble a semi-developed flower.

The aural deformities that fall under the head of stigmata, or that have been classed as such, affect all portions of the external ear. The helix may be imperfect, it may be angular from Darwin's tubercle, it may lack its inward roll, it may be interrupted, the root of the helix may extend inward completely across the concha and in very rare instances it may be bifurcated. The antihelix may be unduly prominent or be insignificant, the scaphoid fossa may extend through the lobule and be double or triple. The lobule may be adherent and sometimes almost absent, thus producing the jug-handle-shaped or so-called Morel ear. It may be exaggerated in size; the whole ear may be misshapen, too large or too small. These deformities may exist in nearly every degree; only when pronounced can they be considered as stigmata. Others have been noted, but their importance as

Fig. 5.

Fig. 6.

signs of degeneracy is very insignificant unless they co-exist with several of those above mentioned.

The normal ear, or rather the ideal ear, for few possess it in its entirety, should have gracefully curved outline, nowhere pointed or angular, have a well-defined helix separated from the antihelix by a distinct scaphoid fossa extending down nearly to the level of the anti-tragus. Its root should be lost in the concha before reaching the antihelix. The antihelix should not be unduly prominent and should have a well-marked bifurcation at its superior extremity. The lobule should be shapely, not adherent or too pendulous and free from grooves extending

Fig. 7.

Fig. 8.

from the scaphoid fossa. The whole well shaped, its proper proportions and size can be inferred from the tables herewith given: In the adult we may say that it ought not to average much over two and a half inches in length and one and a fourth in breadth.

To describe a normal ear would be as impossible as to describe a normal jaw or dental arch. Some eight or ten years ago I collected 3,000 plaster casts of the upper jaw, and in the whole collection no two were found to be alike. If 10,000 or 20,000 casts were presented for examination no two would correspond. This is also true of the human ear. To such an extent is this the case that the two ears of

the same person never correspond either in shape or position, and rarely in size. Again in making an examination for a normal ear two investigators would never agree as to what would be considered as normal. A typical ear as a guide in the study of degeneracy has been described by many writers, G. Ballet, Frigerio, etc. The typical ear, thus regarded, consists of one whose length, width, shape and form represent the average of a large number of ears of apparently normal individuals, the parts of which are all developed in harmony, with graceful curves and outlines.

Frigerio has shown that the normal ear is from 1.95 in. (50 mm.) to 2.34 in. (60 mm.) in length. In an examination of the ear of 356 apparently normal persons, I have found in people over 12 years of age and under 50 years, that the shortest ear was two inches, longest three inches, with an average of 2.50 inches. Narrowest width, one inch; widest, 1.50 inches; average, 1.22 inches. If all structures of the ear can be well developed and in harmony, and should no two resemble each other, it may be regarded as a typical ear.

The chief points in which variations from the normal, and stigmata of degeneracy have been found, are: The auriculo-temporal angle, the position of the ear upon the head, the size, the helix, and antihelix, especially the root of the former, the presence of the tubercle of Darwin, and the shape and development of the lobule.

Like the other deformities, the angle does not denote the criminal alone as claimed by some observers, since frequently just as extreme angles are found among deaf-mutes, dumb, blind, insane, prostitutes, egotists, one-sided geniuses and occasionally among people considered normal. There is this to be said, however, the ear is more prominent at birth and up to the sixth or eighth year than later in life. In other words, the tendency is for the auriculo-temporal angle to become smaller, as the individual grows older. This only shows that the theory advanced by Frigerio that while very few ears are observed at right angles in apparently normal individuals, they will in all classes of degenerates frequently be seen. The percentage among the degenerate classes is greater than in normal individuals.

The different parts of the ear may be well developed while the general shape and outline is the opposite; on the other hand the external outlines may be graceful and pleasing to the eye, while the parts which go to make up the ear may be markedly deformed.

The position of the ear upon the head has been used by neurologists and others as a fixed point in cerebral localization. This can only be approximately correct since the position of the ear varies; in many cases greatly. Not infrequently the ear is found located forward and again back, high or low upon the head. In its relation to the mastoid process and coronoid process there is the greatest deviation. The two ears vary in position in the same individual, one ear often higher and placed more forward than the other.

Thus in an examination of twenty-two skulls by drawing a line perpendicularly through the center of the mastoid process and through the center of the glenoid cavity, it was found that not only did the auditory canal vary from one-fourth to one-half inch in different skulls, but that they differed in the same skull one-fourth of an inch. By placing a square on the perpendicular line in the center of the mastoid process and allowing the arm to meet the outer and upper border of the glenoid cavity by drawing a line with a pencil upon the skull, the position of the auditory canal can easily be located. Thus it will be seen that the canal varies from one-eighth to three-eighths of an inch in a perpendicular direction. Since this is the case in apparently normal skulls, what must be the disparity in position in degenerates when the two halves of the head are so markedly deformed, or when the ears are situated in the posterior or anterior part of the head, or when the upper border of the ear is an inch above the superciliary ridge when it should be on a line with the inferior orbital foramen? I have observed this great difference in height in seemingly normal persons.

Unlike deformities of other parts of the head, deformities of the ear are always seen at birth, though perhaps not as prominently as later in life. While excessive and arrested development of the different parts of the ear are always congenital, they are not always inherited, since many are the result of excessive or arrested nutrition in utero. These deformities are often seen among idiots and feeble minded. The same causes which produce the one in utero, in apparently healthy parents, produce the other.

The Greek and Roman artists, judging from their sculpture, seem to have had no idea of a normal ear. Either they considered the form and position of the ear of little moment in delineating features and character, or the models used by them consisted of marked degenerates; the latter most probably being the case. Many large men have unusually small ears, and small men unusually large ones, while most present the handle-shaped and degenerate ears. The singularly consistent use Hawthorne makes of the degenerate ear in "The Marble Faun" will be recalled by students of American literature.

Morel described the deformities of this organ fifty years ago; later Darwin, struck by the frequency of a tubercle upon the outer border which has received his name, used this organ as evidence of the "Descent of Man." Still later, the ear has been studied by Giachi, Fere, Spitzka, Launois, Frigerio, Ottolenghi, H. C. B. Alexander and others. These signs of degeneracy consist of variations in size, position and shape of the ear as a whole or in part, and are the results of excessive and arrested development.

Deformities of the ear have been studied in the different institutions for special conditions of degeneracy for comparison with what are considered normal individuals. As might have been expected, different results have been observed by different individuals. One investigator may be an untrained novice, while the other has years of experience and can, at a glance, record all the peculiarities. Such being the case, the percentages may differ materially in final results. Only by comparison of the results of different scientists can a just average be obtained.

The illustrations here presented for consideration are those of typical cases, not extreme conditions. There are many degenerates in every class who possess excessive and arrested development of each of the different parts of the ear, and in this manner marked deformities are produced; in some cases exaggeration of parts, in some, arrest of parts. Figs. 1, 2 and 3 illustrate a long, medium and short ear.

The longest ear observed by Frigerio was that of a woman convicted of complicity in uxoricide. The left

was 78 mm. or 3.07 inches; the right, 81 mm., or 3.17 inches.

The ear grows to a greater or less extent through life. The skeleton and organs obtain most, if not all, their growth by the twenty-sixth year. The ear in many cases seems to have become fully developed at that period. That this is not always the case is demonstrated by the following figures:

In an examination of 63 children, from 6 to 18 months of age, the ears measured from 1.60 to 2.12 inches, average 1.90 inches; width from .75 to 1 inch, average .96.

In an examination of 127 children from 8 to 12 years of age the ear measured from 1.95 to 2.32 inches, average 2.19 inches; width .81 to 1.50, average 1.06. As has already been shown, in 356 patients and friends between 12 and 50 years of age the shortest was 2, the longest 3 inches, average 2.50; width 1 to 1.50 inches, average 1.22 inches.

MEASUREMENT OF THE EAR, OF 207 PEOPLE OVER 50 YEARS OF AGE IN COUNTY POORHOUSE, OLD PEOPLE'S HOME, IN PRACTICE AND AMONG FRIENDS.[2]

Length.	Right.	Width.	Length.	Left.	Width.
	51 YEARS.				
2.50		1.22	2.50		1.06
2.75		.88	2.50		.88
2.84		1.50	2.75		1.50
2.50		1.50	2.60		1.22
2.75		1.22	2.75		1.50
2.36		1.50	2.48		1.50
2.50		1.50	2.50		1.50
2.75		1.50	3.60		1.25
2.25		1.25	2.25		1.24
2.60		1.50	2.72		1.28
	52 YEARS.				
2.75		1.50	2.75		1.22
2.50		1.50	2.50		1.50
2.62		1.22	2.62		1.24
2.90		1.50	2.96		1.60
3.00		1.25	3.00		1.36
2.75		1.25	2.75		1.25
2.50		1.50	2.60		1.50
2.50		1.25	2.25		1.23
	53 YEARS.				
2.75		1.25	2.75		1.25
2.75		1.25	2.75		1.25
3.00		1.22	3.00		1.22
2.50		1.50	2.50		1.25
2.50		1.50	2.50		1.50
2.50		1.50	2.50		1.22
2.25		1.22	2.25		1.22
2.25		1.25	2.36		1.22
2.36		1.25	2.36		1.25
3.00		1.25	3.25		1.25
3.36		1.36	3.25		1.36
2.25		1.25	2.36		1.22
2.25		1.36	2.50		1.36
	54 YEARS.				
2.50		1.22	2.50		1.06
2.75		1.25	2.75		1.25
2.60		1.25	2.76		1.25
2.50		1.25	2.50		1.25
2.50		1.22	2.50		1.06
2.75		1.25	2.75		1.22
2.60		1.25	2.50		1.25
2.75		1.22	2.75		1.25
	55 YEARS.				
2.50		1.22	2.50		1.22
2.75		1.25	2.12		1.25
2.50		.96	2.75		.96
2.50		1.25	2.75		1.25
2.50		1.25	2.50		1.25
2.75		1.25	2.75		1.25
3.12		1.25	3.00		1.22
2.75		1.36	2.75		1.25
2.50		1.25	2.50		1.22
2.50		1.06	2.36		1.25
2.36		1.25	2.50		1.25
	56 YEARS.				
2.75		1.25	2.75		1.25
2.50		1.22	2.60		1.25
2 25		1.06	2.25		1.22
2.50		1.25	2.50		1.25
	57 YEARS.				
2.50		1.22	2.50		1.22
2.75		1.25	2.75		1.36
	58 YEARS.				
2.75		1.25	2.75		1.25
2.36		1.06	2.50		1.22
2.75		1.25	2.75		1.25
2.75		1.50	2.75		1.50
2.75		1.25	2.75		1.25
	59 YEARS.				
2.75		1.25	2.75		1.25
3.00		1.22	3.00		1.22
2.50		1.50	2.50		1.25
2.50		1.50	2.50		1.50
2.50		1.22	2.50		1.06
2.75		.96	2 50		.96
2.50		1.22	2.50		1.25

Length.	Width.	Length.	Width.
2.75	1.25	2.75	1.25
2.75	1.22	2.75	1.25
2.60	1.25	2.50	1.25
2.75	1.25	2.75	1.36
2.50	1.22	2.50	1.25
2.50	1.25	2.50	1.22
2.50	1.25	2.50	1.25
	60 YEARS.		
2.50	1.50	2.50	1.50
2.75	1.22	2.50	1.22
2.50	1.22	2.50	1.22
2.36	1.25	2.36	1.25
2.50	1.25	2.60	1.25
2.50	1.25	2.50	1.25
2.75	1.50	2.75	1.36
2.75	1.25	2.75	1.25
3.25	1.25	3.36	1.25
2.50	1.36	2.50	1.25
2.60	1.25	2.75	1.36
2.75	1.25	2.75	1.25
2.75	1.22	2.75	1.22
2 75	1.25	2.75	1.25
2.50	1.25	2.60	1.25
2.50	1.22	2.50	1.22
2.50	1.25	2.36	1.25
2.75	1.25	2.75	1 22
2.75	1.25	2.60	1.25
2.75	1.22	2.75	1.22
2.75	1.25	2.75	1.25
2.60	1.25	2.50	1.25
2.75	1.25	2.50	1.25
	61 YEARS.		
3.00	1.25	3.25	1.25
2.75	1.36	2.96	1.36
3.12	1.25	3.12	1.25
2.75	1.25	2.75	1.25
2.50	1.22	2.50	1.25
2.75	1.25	2.75	1.36
2.75	1.25	2.75	1.25
2.75	1.25	2.50	1.25
	62 YEARS.		
2.75	1.25	2.75	1.25
2.75	1.25	2.75	1.22
3.25	1.25	3.25	1.25
3.25	1.25	3.25	1.25
2.75	1.25	2.75	1.25
2.75	1.50	2.75	1.50
3.00	1.22	3.00	1.50
3.25	1.25	3.25	1.25
3.25	1.25	3.25	1.22
3.36	1.22	3.36	1.22
3.00	1.50	3.00	1.50
	63 YEARS.		
3.25	1.25	3.25	1.25
2.96	1.22	2.96	1.22
	64 YEARS.		
3.25	1.25	3.25	1.25
2.75	1.25	2.75	1.25
2.75	1.22	2.75	1.25
2.50	1.25	2.50	1.25
	65 YEARS.		
2.75	1.50	2.75	1.06
3.00	1.25	3.00	1.25
2.75	1.25	2.75	1.25
2.75	1.22	2.75	1.22
3.25	1.25	3.25	1.25
3.25	1.25	3.25	1.25
	66 YEARS.		
2.50	1.50	2.50	1.50
2.75	1.25	2.75	1.25
2.75	1.25	2.75	1.25
2.75	1.22	2.75	1.22
2.75	1.25	2.75	1.25
2.50	1.25	2.50	1.25
	67 YEARS.		
2.75	1.22	2.12	1.25
2.75	.84	2.75	.84
2.50	1.25	2.75	1.25
2.50	1.50	2.50	1.50
3.25	1.25	3.25	1.25
3.36	1.25	3.36	1.25
2.75	1.22	2.75	1.25
3.25	1.25	3.25	1.25
3.36	1.25	3.36	1.25
	68 YEARS.		
3.12	1.36	3.12	1.36
2.75	1.25	2.75	1.25
2.75	1.22	2 75	1.22
3.25	1.25	3.25	1.25
3.36	1.25	3.36	1.25
	69 YEARS.		
3.00	1.25	3.00	1.25
3.25	1.25	3.25	1.25
2.75	1.50	2.75	1.50
2.75	1.25	2.75	1.25
3.00	1.25	3.00	1.25
3.25	1.25	3.25	1.25
	70 YEARS.		
2.75	1.25	2.75	1.25
2.75	1.22	2.75	1.22
3 00	1.25	3.00	1.25
3.12	1.25	3.00	1.25
2.75	1.22	2.75	1.25
2.75	1.25	2.75	1.25
2.75	1.25	2.75	1.25
	72 YEARS.		
2.75	1.25	2.75	1.25
2.75	1.22	2.75	1.22
3.25	1.25	3.25	1.25
2.75	1.25	2.75	1.25
2.75	1.22	2.75	1.25
3.00	1.25	3.00	1.25
3.25	1.25	3.25	1.25

Length.	Width.	Length.	Width.
	73 YEARS.		
3.00	1.22	3.00	1.22
3.00	1.22	3.00	1.22
3.25	1.25	3.25	1.25
2.75	1.25	2.75	1.25
3.25	1.25	3.25	1.22
	76 YEARS.		
3.00	1.22	3.00	1.22
2.75	1.25	2.75	1.25
3.25	1.25	3.25	1.25
3.25	1.25	3.25	1.25
2.75	1.22	2.75	1.25
2.75	1.25	2.75	1.25
3.00	1.22	3.00	1.22
3.25	1.25	3.25	1.25
2.75	1.25	2.75	1.25
	78 YEARS.		
2.75	1.25	2.75	1.25
2.75	1.25	2.75	1.25
2.50	1.22	2.50	1.22
2.75	1.22	2.75	1.22
3.25	1.25	3.25	1.25
3.25	1.22	3.25	1.22
3.00	1.25	3.00	1.25
2.75	1.25	2.75	1.25
3.12	1.25	3.12	1.25
3.00	1.22	3.00	1.22
	[4]		
	79 YEARS.		
3.25	1.25	3.25	1.25
	80 YEARS.		
3.00	1.50	3.00	1.50
3.00	1.25	3.00	1.25
2.75	1.25	2.75	1.25
3.25	1.25	3.25	1.25
	84 YEARS.		
2.75	1.25	2.75	1.25
2.75	1.25	2.75	1.22
3.25	1.25	3.25	1.25
3.25	1.25	3.25	1.25
2.50	1.25	2.60	1.25
	85 YEARS.		
2.75	1.25	2.75	1.25
	87 YEARS.		
3.00	1.25	3.00	1.25
3.25	1.25	3.00	1.22
	90 YEARS.		
3.25	1.25	3.25	1.25

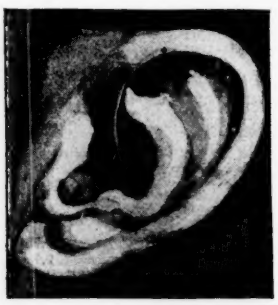

Fig. 9.

In an examination of 207 paupers over 50 years of age the shortest ear is shown to be 2.25 inches, the longest 3.36 inches, with an average right ear 2.73, left 2.76; width, right .88, left 1.50, average, right 1.26, left 1.26. There were 58 persons, or 116 ears that measured 3.25 to 3.36 inches in length. At Pontiac of 465 criminals shortest was 1.75, longest 3, average 2.47; width, narrowest .75, widest 2.25, average 1.21. In 1,041 criminals at Elmira, N.Y.: Shortest 2, longest 3, average 2.47; width, narrowest .75, widest 1.75, average 1.11.

While there are hardly enough figures from which to obtain an average or to establish a basis on which to figure actual facts, yet there are sufficient to prove certain conditions that have already been stated. That the ear increases in length is very noticeable; this can hardly be said of the width. While my experience shows that the ear does not grow in proportion to length, yet considerable allowance must be made for the curling of the helix upon itself inward or outward, which tends to diminish the width. Arrest of development at different periods of the helix also causes considerable variation in width.

[2] Table is given in full to show gradual increase in length as age increases and also to show the difference in length and width in the right and left ears of same individuals.

It will be noticed on examination of the table that in the difference in length as compared with the width there is not so great a discrepancy. The table corroborates the fact that by taking the average of the normal ear of Frigerio (although he does not give the ages) as being 50 mm. to 60 mm., or 1.95 to 2.34 inches, and those of myself, taken at different ages, that the ear of many persons, especially degenerates, does grow through life.

Figures 4, 5 and 6 show the different auriclo-temporal positions of the ear.

Buchanan says that the auriculo-temporal angle for functional purposes should not exceed 30 degrees or be less than 15 degrees. The difference in this respect is not clear, since free movement of head and body will readily adjust the auricle to receive sound. For functional purposes it would seem that the construction and shape of the ear, especially the antihelix and concha, would be of greater importance than its position to the head, since it is necessary to collect the waves of sound for transmission. From a degeneracy standpoint, however, the position of the ear certainly is quite an important figure. Dr. Frigerio,[3] from the examination of several hundred subjects, concludes that the auriculo-temporal angle undergoes a gradual progression from below 90 degrees in the normal person, to 90 degrees in criminals and the insane, to above 90 degrees among apes. He found the large angle very marked in homicides, less so in thieves. There is no question but that Frigerio is correct in regard to this point. In an examination of 465 boy criminals at Pontiac, it was found that 198 were close to the head, or from 10 to 15 degrees; 152 at an angle of 45 degrees, and 115 at right angles, or 90 degrees. Of 1,041 criminals at Elmira 285 were close, 567 at an angle of 45 degrees, and 187 at right angles.

Figures 7, 8 and 9 show the difference in the antero-posterior angle. All three of these angles, especially 8 and 9, are quite common among the degenerates. At the time of making the examination I did not consider the importance of obtaining the statistics, which I now regret very much.

(To be continued.)

ELECTROLYSIS AS A TREATMENT FOR DEVIATIONS, SPURS AND RIDGES OF THE NASAL SEPTUM.

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My lectures before the National School of Electricity have enabled me to estimate the lack of accurate information among physicians as to the nature of electrolysis as a remedial agent. This is my apology for giving a brief statement of the electrolytic process as an introduction to this paper. Electrolysis is that chemic change or molecular disintegration which occurs when a direct (galvanic) current of electricity is passed through animal tissue or any other electrolyte. If a direct current of electricity be passed through water (H_2O) there is an immediate disintegration of the liquid, oxygen being liber-

[3] Frigerio's measurements of the auriculo-temporal angle were taken, with a specially devised instrument, from the pinna to the mastoid. Buchanan's were apparently taken from the anterior edge of the mastoid to the helix, giving the angle of the external face of the whole ear.

No.	Name.	Age.	Method.	Time. Minutes.	No. M.A.	Spur, ridge, crest.	Effects—Remarks.
1[4]	Mrs. T.	46	Monopolar.	18	18	Cart. spur on right side septum.	At the end of ten days the spur was disintegrated leaving a smooth surface covered with healthy membrane.
2	Mr. J. P.	28	"	20	18	Bony crest right side septum.	First treatment reduced crest some. Second treatment (one week later) 15 m.a. 15 min. reduced crest enough to overcome stenosis.
3	Mr. W. H.	24	"	25	18	Horiz. 1¼ in. bony ridge right side sept.	Fainted at end of ten minutes; placed him in reclining position and continued 18 m.a. for 15 min. without further inconvenience. One month later ridge gone and membrane intact.
4	Rev. L.	25	Bipolar.	12	15	Cart. ridge left side.	Two weeks later edges of ridge remaining were removed with a chisel. This required as much work and skill as an original operation with a chisel.
5	Rev. L.	25	"	13	15	Cart. spur left side.	Ten days later spur much reduced and membrane intact. Spur was quite small and of soft cartilage.
6	Miss G.	30	"	12	15	Cart. spur left side.	Large flat needle used at base of spur. At end of one week, spur was much reduced and membrane intact.
7	Mr. J. R.	26	"	15	15	Cart. and bony ridge left side.	Eleven days later ridge gone but there was an offensive odorous discharge from seat of operation. Passed probe one and one-half inches back between walls of septum. Twenty gr. argent. nit. checked necrotic process in three weeks.
8	Mr. L.	29	Monopolar.	13 27	27 20	Ant cart. spur left. Post. rdg. bone.	A cathodal needle was inserted into each growth, a large sponge electrode being held in the hand of the patient. At end of thirteen minutes needle was removed from ant. spur, in twenty seven min. from post. ridge. One mo. later ant. S. gone, post. R. reduced.
9	Miss E.	20	Bipolar.	20	20	Large spur left side, cart. and bone.	After two weeks, spur gone and membrane intact.
10	Miss E.	20	"	12	15	Med. cart. spur right side.	After two weeks, spur gone and membrane intact.
11	Mr. E. S.	26	"	20	15	Cart. spur right side.	For fifteen days sloughing with foul odor; no perforation. At end of one month healing complete. Result good.
12	Mr. E. S.	26	"	13	13	Small cart. spur left side.	At end of two weeks spur was gone. No ill result.
13	Miss P.	21	"	16	14	Large cart. right side.	At end of two weeks spur was gone. No ill result.
14	Mr. C. W.	18	"	18	15	Cartilaginous ridge on right side septum.	Negative needle inserted one inch into ridge. Positive into crest of ridge. At end of first week ridge much reduced.
15	Mr. F. R.	50	"	20	15	Very large cart. spur right side.	At end of second week spur much reduced. Formerly there was great stenosis, now breathing channel was clear.
16	Mr. J. M. B.	25	"	20	15	Horiz. ridge, cart. and bone 1¼ in. long, left side.	Negative needle inserted one inch into ridge, positive inserted into crest. After three weeks ridge almost gone, stenosis greatly relieved.
17	Rev. S.	45	"	14	15	Horiz. cart. ridge on right side of septum.	One month later ridge almost gone, membrane intact.
18	Mr. C. S.	32	"	15	10	Horiz. cart. rdg. (ant.) 1½ in. long left side.	Two negative needles used, one inserted into the anterior, the other into the posterior part of ridge. After three weeks anterior part gone, posterior reduced.
19	Mr. V. H.	24	"	16	15	Cart. spur on left side of septum.	At end of second week spur gone and membrane intact.
20	Mr. E. S.	20	"	15	13	Cart. spur right side.	Spur only partially removed, a second operation with a chisel being necessary for its complete removal.
21	Miss P.	21	"	14	12	Small cart. spur on left side.	At end of second week spur gone, membrane intact.

[4] Cases Nos. 1, 2 and 3 were reported in paper No. 1.

ated at the anode (positive pole) and hydrogen at the cathode (negative pole). If this process be continued the entire amount of water in the vessel will be decomposed, and in its stead will be two parts of hydrogen by volume and one of oxygen. This is a simple illustration of the electrolytic action of electricity when applied to a simple electrolyte. If the substance to be decomposed or disintegrated is more complex in its chemic composition it will undergo the same molecular disintegration, but it will be more difficult of demonstration.

When a direct (galvanic) current is passed through animal tissue it is more or less disintegrated, its molecular, its cellular structure is broken up in the immediate vicinity of the poles. Near the anode (positive pole or electrode) oxygen, chlorin and acids are accumulated, while around the cathode (negative pole or electrode) hydrogen and alkalies are accumulated. There is, no doubt, some interpolar change in the tissues remote from the poles, but it is difficult of demonstration. An inflammatory action is excited, osteoclasts are left in the broken-down tissue and absorption takes place through their agency. Where a larger area is entirely cut off from blood supply it sloughs without absorption. The electrolytic power of the current is in proportion to its density, hence, it is usually applied by means of needles as the active electrode, the indifferent electrode being from a few to a hundred square inches in area, according to the quantity of current needed in the case under treatment. In bipolor electrolysis both poles, usually needles, are introduced into the tissue to be destroyed. It should be remembered that electrolysis does not necessarily mean the caustic destruction of tissue, but rather the chemic disintegration of it.

There is a primary and a secondary electrolytic action to be taken into account. By primary electrolysis is meant the chemic dissolution of the elements composing the tissue; by secondary electrolysis is meant those changes which occur, owing to the presence of the liberated chemicals already referred to. The primary action takes place during the time the current is passing through the tissues, while the secondary action occurs so long as the newly liberated chemicals (hydrogen and alkalies, or oxygen and acids) remain free in the tissues and the osteoclastic absorption is in progress. In some cases it continues active several days. The characteristic reactions occurring at either the positive or negative pole is chiefly due to the peculiar chemic products formed at the respective poles. At the anode we should expect the tissues to be hardened, coagulated, owing to the presence of oxygen and acids about it. At the cathode we should expect the tissues to be softened, liquified, owing to the presence of alkalies there. A moment's consideration will suggest the wisdom of this law, for a vascular growth needs in addition to the disintegration of tissue to shut off the blood supply of the part, so as to prevent rapid repair of the part, while in fibrous tissue the blood supply is poor and a softening of the tissues is needed to favor absorption through the medium of the phagocytes and circulation. Hence, vascular growths are most effectually treated with anodal electrolysis, while firm fibrous growths are best treated with cathodal electrolysis. In some conditions (notably bony and cartilaginous growths) it is indifferent which pole is used locally, or it may be found expedient to use both locally, in order that the current be confined more perfectly to the offending tissue.

The advantages of the bipolar method for operations in the nose are: *a*, the current is limited to

the offending tissues and shock from diffusion of current to brain is avoided; *b*, perforation of the nasal septum is avoided as the current is limited to a field superior to the plane of septum, *i.e.*, to the path between needles in the growth; *c*, the method is simple and less painful than the monopolar method.

Specially devised needles may be used, or in most cases extra large sewing needles answer every purpose. Moure[1] has designed a series of double needles to be used in the base of spurs and ridges, whereby he claims superior results are obtained as the current is more uniformly distributed through the growth, thereby favoring its complete removal with a minimum quantity of electric force. All my operations were done with single needles except No. 18. The part of the needle not imbedded in tissue should be insulated with varnish or small rubber tubing to prevent destructive action to inoffensive tissue.

The outfit needed to do electrolysis of bony and cartilaginous spurs and ridges of the nasal septum must embrace the following: *a*, a source of electric energy equal to twenty-five LeClanche cells—a properly reduced and guarded Edison current may be used; *b*, a reliable rheostat, the Massey current controler answering every purpose; *c*, a reliable milliampèremeter. It would be folly to attempt to do electrolytic work without accurate measurement of the electric energy employed. To depend on the number of "cells turned on" is as absurd as to tell a patient to take ten pills without regard to the quantity of medicament each represents. Cells used in medical batteries have an electromotive force ranging from 1 to 2 volts, and the resistance of the various tissues of the body varies all the way from 2,000 ohms to 500,000 ohms, hence there is no way of estimating the quantity of current passing through the body except to measure it with some reliable instrument. The quantity of electric energy required to disintegrate such growths as are of common occurrence in the nose and throat is from 2 to 30 m.a., according to the size of growth and kind of tissue composing it.

In my first paper[2] it is implied that I was the first American observer to write upon this subject, but I now freely accord Dr. James E. Newcomb, New York, precedence in the field. In the *Medical Record*, Aug. 5, 1893, he wrote under the title, "Electrolysis for the Relief of Certain Morbid Conditions of the Nasal Septum." He gives an admirable review of the literature to that date with a report of two cases. Since then, there has been little that is new, except some slight modifications in needles and the adaptation of the Edison current to nasal electrolysis by Dr. Casselberry.[3] He takes the position, in an article read before the American Laryngological Association, at Rochester, that bony growths will not yield to the electrolytic action of the current, contrary to continental observers and also contrary to my own observation.

I present herewith a tabular report of twenty-one cases in private practice, from which I arrive at conclusions as to the propriety of resorting to electrolysis for the removal of septal spurs and ridges.

These cases were all well-nourished, healthy people. An equal number of dispensary cases treated in the same way would, no doubt, show less favorable results. While the results are quite favorable in most cases, the fact still remains that as a method it is neither so simple nor so sure as others at our command. I quite agree with Dr. Bresgen[4] that its scope should be limited: *a*, to those cases in which it is impossible to carry out the usual surgical treatment, either on account of weakness or other disability; *b*, those cases in which more radical measures are refused; *c*, that electrolysis is not, nor can it ever be, a therapeutic measure which can be used by other than experenced specialists, because when carried out by unskilled ands it can only lead to disaster. Dr. Bresgen was supported in his conclusions by Drs. Hajek, Stoerk, Heymann and Chiari.

I will add the further conclusions: *d*, cartilage yields more readily than bone; *e*, an osteoma is more easily removed than normal bone, because being an abnormal growth it is an irritant and is therefore more unstable, requiring less irritation to cause proliferation of osteoclasts; *f*, only growths of minor size are successfully treated by electrolysis, those of major size being only partially removed; *g*, large growths, especially those with a wide base, should be attacked with double needles at base and single needle at apex; *h*, perforation and sloughing will result from the use of too much current, or from a prolonged use of a moderate one (see case No. 7); *i*, all cases should be thoroughly cocainized by placing a pledget of cotton saturated with a 10 per cent. solution of hydrochl. cocain over the part to be operated on, and leaving it there for eight minutes.

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[1] Archives Cliniques de Bordeaux, February, 1893.
[2] JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Nov. 10, 1894.
[3] American Laryngological Association, Rochester, 1895.

THE TREATMENT OF TRACHOMA AND TRACHOMA SEQUELÆ.

Read in Part at the Annual Meeting of the Tri-State Medical Society, at St. Louis, April 3, 1895.

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Trachoma cases come to us for treatment not only in all stages and states of active disease—such as acute, sub-acute and chronic—but also after the affection has worn itself out; been consumed by its own fire, so to speak, and we have to do only with its effects; and every phase of the morbid process, every attendant complication and, lastly, every resulting defect of the lids or eye, calls for some particular method of handling.

In view, therefore, of the prevalence of trachoma, or granular conjunctivitis, or granulated lids, or what you will, in the three States represented by this society, especially in Illinois, and having, through my connection with the Illinois Charitable Eye and Ear Infirmary for the past eight years, been afforded admirable opportunities for observation along this line; moreover, in view of the fact that the disease is peculiar to the very class of sufferers who can not, as a rule, most easily consult the oculist and comes, perhaps, oftener than any other ocular affection within the province of the general practitioner, I could think of no more fitting subject to bring before you.

To the point then, and briefly: As to the acute stages of trachoma the treatment must be mainly that of septic conjunctivitis in general. The free and constant use of antiseptic solutions, as baths, douches

[4] Journal of Laryngology, Rhinology and Otology, Jan. 1895.

and instillations; the application over the closed lids, and for only three to ten minutes at a time of intensely hot water, the sparing use of atropin for its quieting effect, and occasionally when the deeper parts of the eye, such as the iris, become involved, the putting of leeches to the temple. As an all-around disinfectant remedy nothing quite equals a solution of the bichlorid of mercury. For a douche or instillation its strength should not be less than 1-10,000 nor more than 1-2,000; as a strictly localized application, however, one may with safety and to advantage use solutions varying from 1-500 up to 1-60. Second in importance only to sublimate is the nitrate of silver, either in solution or in substance. I may state, once for all, that in the use of these salts not so much depends upon the strength of the solution as upon the method and tact with which it is applied. A nicely sharpened pencil of lunar caustic may by deftness and caution be made to give the mild effect of a 2 per cent. solution of the same. By your leave I will explain my manner of applying these strong solutions to the conjunctiva. Of silver I rarely use less than sixty grains to the ounce of distilled water, or perhaps what is a still better medium, a 4 per cent. solution of boric acid in distilled or boiled water. The nitrate of silver dissolved in this gives a clearer and more stable solution than when dissolved in water alone. Being seated in front of the patient or, if a child, holding its head tightly between the knees while the body and hands are held by an assistant, the eyes are washed externally with absorbent cotton wet with warm boric acid solution, special care being taken to cleanse the cilia and canthi, after which the lids are everted, sponged off with absorbent cotton dipped in boric acid solution and tightly wrung, for dry cotton should never touch the eyes. A small delicately pointed brush is made by winding absorbent cotton on a silver probe. Camel's hair brushes I consider an abomination. If one could keep them absolutely clean and have a separate one for each patient they would be bother enough, but this is impossible, while absorbent cotton is not only always clean and ready, but is actually a better vehicle. Making sure now that the exposed conjunctiva is freed from moisture by sponging, the brush is dipped into the strong solution, whether it be of silver or sublimate, touched to the lip of the vial so that at the moment of coming in contact with the lid it will not give off a drop to spread and do injury to the unaffected parts. And here is just the point, to strictly localize the effect.

No doubt much harm has been done in the treatment of these cases by the slipshod manner of using caustic remedies; by allowing a solution of silver, for example, to run down over the cornea, destroying its epithelial protection, thus giving better chance for infectious ulcers; again by indiscriminately touching the whole of the exposed conjunctiva, diseased and normal portions alike, thus aiding the malady itself in the destruction of tissue and favoring greater cicatricial contraction afterward. Whether we use brush, pencil of lunar caustic or crayon of copper, I repeat, it should be sharp-pointed and the granulations should be gone over therewith much as an artist goes over his nearly-finished painting putting in the high-lights. Sufficient impression must be made at each point where the remedy is applied to cause the appearance of a decided coagulum—dense white if silver, grayish if sublimate or copper. Immediately after this, comes copious douching of the whole conjunctival sac with very warm saturated solution of boric acid; dropperful after dropperful is poured on the membrane, flooding cornea and all, the patient holding a hard-rubber pus basin beneath the chin to catch the overflow. I have found that the warmer this douche can be borne the better. One's patient is more comfortable after the treatment.

Lastly, the excess of moisture is again sponged away and one drop of a 4 per cent. solution of cocain, containing six drops of carbolic acid to the ounce, is let fall upon the everted upper lid. The eyes are then carefully wiped externally with wrung-out cotton to keep the patient himself from employing his own means and materials for doing it; indeed he is told to let the eyes severely alone. Many trachoma cases, both acute and chronic, will come with photophobia and spasm of the orbicularis, which, aside from being bars to progress in treatment, cause complications such as pannus, conical cornea, trichiasis and entropion.

It was for a long time believed that entropion was solely due to the contraction of the conjunctiva and warping of the tarsi from connective-tissue degeneration; it is now known, however, that an important factor in the production of this deformity is prolonged blepharospasm, especially of the tarsal and border fibers of the orbicularis. Through its influence the posterior angle of the free border of the lid is absorbed, whetted away, as it were, and the anterior angle with the cilia brought down in contact with the eyeball.

Our first care then, where exists dread of light and spasm of the orbicularis of the lids, should be to remove these conditions. The former will yield to systematic exposure of the cornea to bright daylight. If the patient has resolution enough he can often be prevailed upon to keep his head erect and his eyes open until they will tolerate the light; if he can not or will not try to do this, cocain may be instilled, a blepharostat put in, and the face directed toward a well-illumined window. This done for a few minutes daily works wonders. Best of all, however, for both conditions, is a well-made canthoplasty, together with free division of the external canthal ligament.

Where there is excessive lymphoid infiltration of the conjunctiva, be it contained in discrete granulations or trachoma bodies, or whether it be distributed profusely beneath and in the swollen papillæ, thanks to the man who invented squeezing-out[1] forceps; the process of treatment in such instances has been tremendously shortened by the expression of the infiltrated portions. Here is a pair I have had made of tortois shell, a material that resists the action of the strongest antiseptic, and by its elasticity prevents undue laceration in the squeezing procedure. The operation of excising the retro-tarsal fold or fornix of the conjunctiva for the cure of granulations has always struck me as being a little too heroic, since great loss of this membrane, particularly where such loss would tend to restrict the movement of the eyes and lids, is precisely what we wish to avoid.

Yet there is a time for excision of the granulations, viz., when the hypertrophy of the papillæ has gone to the extent of forming hard knob-like tumors in more or less advanced stages of connective tissue degeneration over the tarsus and at its upper border These act like so many foreign bodies and by their

[1] Suggested by Mandelstaum in 1883, and first practiced in America by Dr. F. C. Hotz, of Chicago, in 1886.

continual rasping do great damage, especially to the cornea. Their indifference to the laying on of ordinary medicaments is supreme; even the oft-repeated and prolonged rubbing of them with a bit of sulphate of copper but serves to give them a little polish. Hence in dealing with these it is my custom to evert the lid, put on a drop of cocain solution, and with delicate, sharp scissors, curved on the flat, trim them short off.

As to corneal complications, they are as a rule purely secondary and do not require special attention. At times, though, an ulcer will become too large or threaten to perforate, requiring vigorous antiseptic treatment and, if encroaching on the posterior layer of the cornea, eserine to lower the intraocular tension, and a roller bandage to give outward support. Sometimes, too, blood vessels will remain over the center of the cornea, interfering with vision and disfiguring the eye, even after the original disease has disappeared. To cause their absorption one has but to incise the tissues immediately surrounding the cornea in a complete circle and clean down to the sclera, retract them somewhat and scrape the bottom of the furrow well with the convex edge of a sharp scalpel.

Passing now to those sequelæ of trachoma that call for surgery of the lids, we will consider only what goes by the rather comprehensive name of entropion. This may consist mainly in a slight warping or incurvation of the tarsus from the deposit of scar tissue in a more or less pronounced horizontal groove along its inner face, the free border being fairly well preserved, and only a few eyelashes resting on the cornea; in which event a well-executed Hotz operation will suffice to set all to rights again. But by far the greater number of the cases, as we find them, will have a much more aggravated condition. In many the conjunctival sac will be shrunken until both upper and lower fornices are obliterated—the tarsi so atrophied that their transverse measurement is only half, or less than half, the normal, having a deep groove within, and a decided ridge without, and the free border of the lid worn down to a very thin edge just at the point where the lashes emerge from their follicles, and the lashes themselves all inside the palpebral fissure, and all resting on the eye-ball. There will be more or less over-tension of the orbicularis, as also photophobia, the last from the corneal irritation. Experience has taught that, in cases so extreme, a Hotz operation alone, no matter how pronounced the primary effect, will not give permanent correction. In short, each distinct, morbid feature, as enumerated above, must be met by a separate surgical measure, and each measure made to give its maximum effect. To replace the inner angle of the free border and, to a degree, the atrophy of the conjunctiva as well, a graft of mucous membrane is taken from the lip and placed just back of the cilia; with the Hotz operation is combined a counter-grooving of the tarsus, and for the relief of lid-tension the border fibers of the orbicularis muscle are excised (not the muscle of Riolan, for this would be impracticable), and canthoplasty, with thorough cutting of the external canthal ligament, is done. Moreover, to insure the best possible and most lasting result all of these operative procedures must be resorted to at one and the same sitting. Were the canthoplasty done to-day, the graft put in to-morrow and the Hotz operation made the day afterward, our object would not be attained. I have seen many instances of failure in the results of these operations, but never one of permanent over-correction. In a number of my own cases, temporary ectropion has occurred, but in none has it remained. Indeed, we might even strive with advantage, to produce slight eversion of the operated lid. With your permission, I will describe the operations as made in exaggerated cases; not because I have anything new to offer, but because, having given much attention to the technique of this particular surgery I desire, for the first time, to give details. Patients are prepared for the operation by a few days of hospital regimen; baths, clean clothing, antiseptic eye-washes and eye-douches. At the moment of operating, the eye and its appendages are most thoroughly and carefully cleansed; the same, as to hands and instruments. Ether is usually given, though many prefer to stand it without; cocain, however, being freely instilled at the site while the instruments are being used. This first step in the combined operation is the making of the canthoplasty, and the cutting of the external canthal ligament. For this the only instrument used is a pair of straight, strong scissors with very blunt points. Standing behind the patient's head the lids are gently pressed apart, one blade of the scissors introduced behind the outer canthus as far as it will go without using force, and as free division of integument and conjunctiva made as can be done at one snip. Then the lid is taken between the thumb and finger, by pulling the external canthal ligament is put upon the stretch and, on putting the scissors into the incision with the blades closed, can be readily felt. One snip also serves to cut it, when the lid at once gives way from its support on that side, as detected by the thumb and finger holding it. The sutures here, which complete the canthoplasty, are left till next to the last step. Next thing, we make the incision just back of the cilia to recieve the mucous graft. Apropos of the tissue here employed, there was a time when I used fine-textured skin, such as exists behind the ear, but having had one case in which a large ulcer came on the cornea just under the graft, apparently due to the fact that the secretions of the lids and conjunctiva failed to moisten the piece, as there were no hairs in it to scratch, and it had to be excised and mucous membrane substituted, before the ulcer would heal. For this incision the only instrument is a small, very sharp scalpel, with great convexity of edge near the point. The lid is well everted and held thus by the fingers alone, not by fixation forceps, for they do too much traumatism. The taking of the first step (viz., the canthotomy) in the operation makes the second an easy one. A rather deep incision is made extending about the whole length of the free border, avoiding the punctum, hugging the conjunctival and not the tarsal side, and observing well that all the hair follicles are in front. The object in making this cut at this stage is to give time for bleeding to cease in time for the last step, viz., the insertion of the graft. The third step is the Hotz operation—a most efficient feature, and too well-known a procedure to require a description. I would like, however, to call attention to two or three points in this connection. The incision through the integument and obicularis is often made too far from the free border. In this, one should be governed by the width of the tarsus, since *it* is the "stiffening," as tailors put it, across which the lower flap (we are speaking now

tially. It becomes doubly important that the weak of the upper lid) must be tightly drawn in order to turn out the lashes. Moreover, to get the full effect, this lower flap must be dissected down to the free border, or until we see the cilia stretching across the bottom of the incision like stitches of thread in a seam, being cautious enough not to cut a buttonhole through, and all the border fibers of the orbicularis, that is to say, all those fibers of the palpebral portion that lie near the free border, must be excised. The next step is the grooving of the outer, or convex, side of the tarsus if the latter be much warped. Then, as to the placing and tying of sutures, I was taught, I do not know by whom, but certainly not by Dr. Hotz himself, that the second puncture of the needle carrying the suture was in the tarsus. Instead, it is infinitely better, and was undoubtedly the originator's idea, to utilize the full breadth of the tarsus to stretch the flap bearing the cilia across, and to pass the needle in just *beyond* the convex border of the tarsus. And in tying the thread, after the first turns are taken in it, the lower end is given to an assistant while the operator holds the upper, when, with the other hand, and by the aid of forceps, the edge of the lower flap is drawn up and set in contact, and held at the point where the suture plunges into the deep fascia constituting the ligament of the tarsus, when the knot is drawn tight, surgeon and assistant drawing together, and completed. Then come the sutures to make the canthoplasty; and lastly, the cutting and putting in of the graft. The lower lip is everted by the fingers, washed with warm boric acid solution, and cocain dropped on. To remove the piece I roll the lip around the ball of my middle finger, and with the same scissors used for the canthotomy, excise at one cut a long ellipse of the mucous membrane, sufficient to fill the incision in the free border of the lid. Dip it in the warm boric acid solution and lay it over the left thumb nail, face downward, and with small, curved scissors, trim off all the adipose and as much of the sub-mucous connective tissue as is practicable, and again immerse it in the warm boric acid solution. The incision which is to receive the piece is now spread wide open and the graft laid in, it goes without saying, flatwise, not edgewise, and with the epithelium outward. Small sponges with thin edges, made by wringing small bits of absorbent cotton out of boric acid solution, are delicately applied round about the border of the graft for a few moments to drink up the ooze of blood and other moisture, the lid being held everted the while; after which the eye is closed and a borated dressing is put on, fixed by a mosquito-netting bandage, applied wet. No sutures are used either in lid or lip. The dressing should be removed after the first forty-eight hours, then daily three or four times, for if the lids are left exposed too soon the grafts become dry and hard, much to their detriment.

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A Medical Gentleman. A medical gentleman always recognizes that it takes money to publish a good medical journal and that as a rule the better it is the more money it costs. He does not fly into a passion when he receives his reminder in the form of a bill for subscription, but as he hopes that his patrons may pay him, he promptly sends the amount to his publisher, *tuto, cito et jucunde.*

SOME MECHANICAL PROBLEMS IN THE OPERATIVE CURE OF INGUINAL HERNIA.

Read before the Medical Society of the Missouri Valley, Council Bluffs, Iowa, Sept. 19, 1895.

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It is customary to think of the abdominal viscera as making unrestrained pressure in every direction in their efforts to escape from the cavity in which they are enclosed. If this were literally true, hernia to the extent of total disability would be the rule. In the normal condition the relationship is such that when the omentum, the small intestine or the large intestine has pressed about so far in any given direction, it can go no farther, not because of the resistance met in front, but because of the restraint offered by the mesentery, the mesocolon, or other attachments. This restraining force does not manifest itself by a sudden pull like the jerk when the end of an elastic cord is reached, but by the gentle traction of an elastic tether, which causes the organ to glide away from the danger point over the slippery peritoneal surface.

From these considerations the inference is natural that because A has a hernia and B has not, it does not prove that A's abdominal wall was originally weaker than B's, or that A's deep ring was more open or more distensible. But it is fair to infer that A's mesentery or mesocolon is abnormally long or abnormally attached; or, if the omentum be the *persona delicta*, that this apron is too long, or too heavy, or its attachments above have descended from either dilatation or displacement of the stomach. In the event of none of these abnormalities being originally present, A has probably been in the habit of overloading the alimentary canal by eating too much, or has been a victim of constipation, or his work has been such as to subject him to frequent and severe strains. Any of these influences may have brought about in an artificial manner the conditions favorable to the production of hernia.

If the above are the correct etiologic factors, when the question of the operative cure of a hernia is considered, the surgeon must (1) and preferably, remove the original cause, or (2) make the abdominal wall at the site of the rupture stronger than nature made it. Unless one or the other of these conditions is met, efforts towards cure are bound to be followed by disappointment on the part of the surgeon and the disgust of the patient.

1. The first requirement can seldom be met except in a slight degree. It would not be practicable to put a tuck into a too long mesentery or mesocolon; but it may be possible to temper gluttonous habits, correct constipation, or induce a patient to follow an easier occupation. Should the contents of the sac be omentum it is a good plan to curtail its length by ligating and removing the extruded portion. I have practiced this expedient in several cases and have been pleased with the result. De Garmo not only removes what omentum he finds in the sac but draws down as much more as possibe, ligates and removes it. This procedure comes very near fully meeting the condition.

2. But it must be admitted that in the majority of cases the first condition can be fulfilled only par-

point in the abdominal wall be made stronger than nature made it. Until very recently this had not been very generally accomplished. In a paper before the American Surgical Society, in 1890, no less an authority than Bull asserted that he had never seen a case that had remained cured five years after having been operated upon.

So much for hernia in general. The difficulties with which we have to deal and the generally unsatisfactory results of operations for the cure of inguinal hernia need no further comment than a reference to the myriads of "new" and "improved" processes which from time to time have been heralded to the medical world only to give place to a method still newer in the next issue of the journals. A disability so frequent, so troublesome and so dangerous has been deemed of sufficient importance to command the attention of hundreds of workers who have given to the subject their best thought. Until very recently no operation had been devised in which the percentage of permanent cures was great enough to make any surgeon very sanguine. When a sufferer consulted an honest medical man he was likely to be told to content himself with the use of a truss, however unsatisfactory, and cautioned against any form of surgical operation as too dangerous and uncertain.

Since it has been made possible to perform such operations with very slight risk to life or danger of wound infection, the efforts to solve the mechanical problems that enter into a cure of hernia have been redoubled. From St. Petersburg to San Francisco and from Italy to the North Cape surgeons have been at work trying to evolve a way to strengthen a place in the abdominal wall which nature has left intrinsically weak.

The weakest point is usually at the site of the deep ring. Although the spermatic cord is surrounded here by a strong muscular and tendinous border there is often space for a small piece of omentum or intestine to insinuate itself by the side of the cord when a cough or anything else which increases intra-abdominal pressure will stretch the ring and increase the space by the side of the cord, putting everything in a more unfavorable condition to bear the next strain. Repeated stretching in this manner is doubtless the usual precursor of the sudden "giving away" by which the average patient describes the origin of his rupture. This "giving away" I take it is only the final step in a process which has been going on for a considerable time. There are occasional cases in which a sudden very intense strain has produced the hernia, the ring not having been stretched and weakened before, but I believe such cases to be very rare. These remarks do not, of course, have any reference to congenital herniæ, whose formation is so well known as to need no explanation here.

Numerous methods have been devised for the disposal of the hernial sac. It has long been the orthodox belief that the sac must be so disposed as to leave a smooth surface or a convexity, that the impact of the abdominal contents during a moment of increased intra-abdominal pressure, may not find a depression at the place of exit of the cord. This has always seemed to me to be making a great matter of what is really an unessential. It makes little difference what disposition is made of the sac; within a few weeks the peritoneal surface will be smooth.

The important point is that there shall be no infundibulum left external to the peritoneum. If such an infundibulum exist, it matters not how smooth the peritoneum may be, it will soon be invaginated into the depression, the thin, distensible peritoneum presenting very slight resistance to pressure. This furnishes a useful hint when it comes to treatment. The stronger structures external to the peritoneum must be well drawn together and the cord must pass through as narrow an opening as is consistent with continued function of the cord. This gave rise to the practice of closing the deep ring external to and above the cord. But one of the weak points of such operations arises from the condition in which the transversalis fascia is left. This structure is one of the strongest elements making up the abdominal wall. In old and large herniæ it has become much stretched. When the cord is simply pushed backward and the tissues more external are closed over it the overstretched transversalis fascia is left untreated and it presents almost an open door for a new hernia. This condition of the transversalis fascia is doubtless what lead Bassini and Halstead to see the need of a stronger wall posterior to the cord. The construction of a new canal with a strong and firm posterior wall was evolved and the operation for the cure of inguinal hernia is now upon a secure basis—relapses being very few.

A brief comparison of the relative excellences of the Bassini and the Halstead operation may be profitable. The inference is often made that, if Bassini's operation is radical, Halstead's is still more radical, and therefore, if the former is effectual, the latter must be still more effectual. This is a plea frequently made in favor of the Halstead method. Whether there is anything in this specious reasoning let us see.

The statistics of both operations are excellent. Bassini's latest reports show a total of 536 operations with no deaths and only 15 relapses; and Coley reports 160 operations done by his modification of the Bassini operation—using kangaroo tendon for the buried sutures—with one death from double pneumonia on the fifth day and three relapses. Halstead's statistics seem equally good though lacking the number of operations performed.

Admitting that from a statistical standpoint there is little to choose between the two methods there seem to be a few valid objections to the Halstead operation which are less apparent in the operation of Bassini:

1. With the carrying of the incision through the deep muscles outward from the deep ring for the purpose of transplanting the cord, the operation is made a true laparotomy, and such an incision carries with it all the inherent dangers of an abdominal hernia to which every laparotomy is subject.

2. The new ring of Halstead is made of normal muscular tissues and would not seem to be the ideal structure for a ring. It would be wanting in firmness and be too easily distended when impinged upon. When the cord is simply carried to the outer margin of the natural ring and the ring is closed as closely as possible from the inner margin, as after Bassini, the margins of this smaller ring are already smooth and almost tendinous and are much less distensible than ordinary muscle.

3. When the cord passes directly through the deep muscles and also through the aponeurosis of the external oblique, as Halstead does it, it must then bend at right angles downward and inward. Just at the

bend there must be decided pressure of the dense aponeurosis which can not fail to produce occasional destructive pressure upon the spermatic cord. The same objection has been raised against the Bassini operation and some cases of atrophy of the testicle have been noted. If this accident can result when the bend of the cord is made over the softer tissues it is certainly much more likely to occur after the Halstead method.

4. An objection often made to the Halstead method is that it places the cord so superficially that it is exposed to dangers from contusions. Although I do not believe this would often happen there can be no question that the criticism is valid.

5. By uniting the aponeurosis of the external oblique over the new canal, Bassini forms a solid point of resistance over the deep ring. In order for a new hernia to form an opening must first be forced so large that the viscera extruded can turn at a right angle underneath the firm aponeurosis—a thing very unlikely to happen. In the Halstead operation, the new canal passing directly through the whole thickness of the abdominal wall, there is no hindrance to the viscera pushing their way directly through, if once the slightest infundibulum forms at the inner end of the canal. Any one who will for a moment think how easy it is to separate the fibers of the external oblique when they once begin to separate, can not fail to see that this aponeurosis, in order to do effective service, must be intact. An opening through it large enough to permit the exit of the cord introduces an element of weakness which does not obtain in the Bassini operation. That the aponeurosis of the external oblique serves as a buttress and adds greatly to the strength of the wall can be fully appreciated when one calls to mind the frequency of direct inguinal hernia, which occurs at the superficial ring, the point where the underlying tissues are not re-inforced by the aponeurosis. Kocher claims that the main cause of relapse is the overstretched condition of the aponeurosis and the chief distinguishing feature of his operation is to draw this structure taut by means of sutures. Here we have a high authority for the statement that the aponeurosis does serve as a buttress. In doing the Bassini operation I believe it is advisable to suture the aponeurosis over the cord as firmly as can be done without dangerous tension. This can best be done by inverting the edges.

6. Finally in case of relapse after the Halstead operation the condition is likely to be worse than after the Bassini. If the hernia recurs after Halstead's method the skin and superficial fascia offer no opposition to the hernial contents. And as any one can see, if the external oblique fibers once begin to separate, they will separate easily and there is no limit to the size to which the relapsed hernia may attain. After the Bassini operation, if a relapse occur, the intact aponeurosis will act as a check and will offer a favorable condition for the use of a truss.

There are one or two modifications of the Bassini method which seem to me will improve its usefulness. One of them is the practice introduced by Halstead of ligating and excising superfluous spermatic veins, especially if varicocele or anything approaching varicocele be present. The cord can thus be much reduced in size and with it the caliber of the canal.

Another decided improvement is the use of kangaroo tendon for buried sutures, as so ably practiced by Coley. Marcy, of Boston, has shown that kangaroo tendon when buried in the tissues is absorbed at the end of two or three months; and Bosse has thoroughly investigated the healing process of tendinous tissue, finding it complete at the end of ten weeks. From this showing there can be no doubt that kangaroo tendon is the ideal suture, being superior to silk, catgut, silver wire, or silkworm-gut.

I have no hesitation in pronouncing the Bassini operation, slightly modified, the best yet devised for the cure of inguinal hernia in the male. The rationale of the method is scientific and the practical results all that could be expected of any operation. Following is a brief résumé of the steps of the operation as I am in the habit of performing it:

After one or two days of liquid diet, the alimentary canal having been thoroughly emptied, and the field of the operation having been shaved and scrubbed a few hours before, an incision is made, just above and parallel to Poupart's ligament, extending from an inch external to the deep ring, to the spine of the pubes. This incision is carried directly down to the aponeurosis of the external oblique and the tissues retracted slightly in order to bring the white aponeurosis into good view. Next the fibers of the aponeurosis are separated, the separation extending from the superficial ring to a short distance external to the deep ring. The aponeurosis is then loosened for a half inch to an inch above and as far as the attachment to Poupart's ligament below and the borders are held aside by retractors.

The cord and sac are now laid bare and the sac separated well down to the abdominal peritoneum. The sac is then opened, and if the contents be omentum this structure is ligated and cut off; if the contents be intestine it is reduced. The sac is next drawn well out, twisted, tied with catgut ligature, and cut off. The cord is raised, superfluous veins ligated and excised and the remainder held out of the way by an assistant, using his finger or a dull retractor. Kangaroo tendon sutures are used to unite the internal oblique, transversalis, and transversalis fascia to the posterior surface of Poupart's ligament. The internal suture should be placed as far toward the external border of the deep ring as is consistent with the integrity of the cord. It is important in placing this row of sutures that the stretched transversalis fascia be drawn well up in order to make it normally tense.

The deepest row of sutures having been completed the cord is dropped back and the aponeurosis of the external oblique united over it also by means of Kangaroo tendon. Either interrupted or continuous sutures can be used, being careful to invert the cut edges of the aponeurosis and make as taut as practicable without undue tension. Finally the skin wound is closed with interrupted sutures of silkworm-gut and a sterilized dressing applied, binding it on by means of a spica bandage. The bowels are moved on the second or third day, the dressings changed and skin sutures removed on the eighth or ninth day. The patient is kept in bed for three weeks. He is then allowed to go about, is warned against heavy lifting for several weeks longer and discharged with no truss or other apparatus to harass him.

This is about the method I have adopted in several cases and the results have been so gratifying that I do not hesitate to advise any patient with hernia

which causes him the least inconvenience, to resort to the operation. Great aseptic care must be used to guard against accidents. With such care I see no reason why the operation for the cure of inguinal hernia should not be practically free from danger and the percentage of relapses be almost *nil*.

GENERAL AND SPECIAL TREATMENT OF TUBERCULOSIS.

Read before the Dodge County, Wisconsin, Medical Society, at Waupon, Wis.

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It is a source of pleasure to state in the words of an authority, Solis Cohen, that tuberculosis of the lungs is a curable disease. This authority, however, believes that the statement must be considerably modified with reference to the outcome of every case. We all realize from painful experience how utterly inefficient were our past resources in the arrest of these cases. There is no disease within the realm of medicine that gives the physician more prolonged and painful anxiety, because, in the first place, it is a pathologic process, generally occupying a lengthened period of time, whether in the direction of recovery or death; and in the second place, because we can not weigh in the balance the amount of potential energy possessed by the victim and the degree of vitality of the invading bacilli. We are thus surrounded by a cloud of uncertainty.

It may be well to generalize the situation by the statement that tuberculosis is primarily a local manifestation of a degenerative process, which may be limited to a few cells, or lobules of the lungs, or diffused, so to speak, throughout the economy, the characteristic tubercular process being due to some form of lesion whereby the active principle (the bacilli) gains a foothold through that gateway or entrance.

Degeneration of cells is produced by prolonged disregard of natural laws by predecessors, or promoted in the direction of depression, privation or excess. Anything either within or without the economy that is calculated to reduce the physiologic resistance of individual cells prepares the way for this dreaded enemy. We may also state the opposite, that everything within or without the economy calculated to maintain the standard of physiologic resistence are ideal conditions to ward off danger. With normal resistence of individual cells the microbes will come and go harmlessly. After the invasion of the tissues by the bacilli the struggle for existence continues, it being then a case of the survival of the fittest.

I have been deeply impressed of late by the suggestion, that we should examine the lungs of our patients more thoroughly and more frequently, especially those who have chronic dyspeptic symptoms and subject, by least exposure, to catching cold. When there is a persistent yellowish deposit on the tongue, after excluding malaria and rheumatism, we should suspect incipient tuberculosis; particularly when there is the least evidence of a predisposition in the family history. These symptoms, associated with indications of parenchymous change, constitute the so-called pre-phthisical state. It may be defined as a disposition of individual parent cells to produce a progeny of lowered vitality, brought about by conditions entirely outside of the cells; conditions which produce mal-nutrition of cells. We shall not err very much by saying that in most of these cases the great battle for the supremacy between cell and bacillus has already commenced.

It is evident that to overcome this morbid state of mal-nutrition, our efforts should be directed towards making the environment as physiologic as possible. Our hope of relieving suffering humanity rests upon this principle generally speaking.

Nature has endowed all cells with wonderful recuperative forces, and providing that the parent curse of many generations does not rest upon any biologic cell, nor the surroundings be unfavorable, all living protoplasm by inherent forces will evolve from a lower to a higher state of physiologic vigor. I would suggest that these cases be treated, in all detail, as tubercular, even in the absence of any positive local symptoms. The treatment that promises any degree of satisfaction must be general. We must resort to all measures to improve nutrition, to bring the economy into harmony with its surroundings. We can not call to our aid any one specific, and I doubt if we ever shall; for independent of the invasion of bacilli are the degenerate cells. I feel, however, enthusiastic over the possibilities within reach of all. Our hope of a successful issue rests not upon directly fighting bacilli; but upon fighting degeneration of individual cells; upon increasing potential energy, modifying their surroundings, bringing the cells into harmony and equilibrium with environment. If we succeed in our efforts we may venture to disregard the bacilli, for we shall have succeeded in changing a favorable to an exceedingly unfavorable soil for their development.

A very essential beginning with these cases consists in ridding our patients of all disobedience and anxiety by laying the whole matter intelligently before them. In no other manner can we successfully protect the well and gain the patients harmonious co-operation. Inspire them with confidence and hope. Impress upon them the fact that by prolonged obedience to natural laws, rests their future welfare.

Cheerful surroundings are an essential factor to a successful issue; they aid nutrition reflexly through the mind. Prompt and thorough elimination of the products of normal and morbid tissue metabolism must be maintained. All the emunctories must be kept actively at work.

We will first take up the skin. By warm baths we increase its eliminative function; the superficial capillaries are filled and the lymphatic circulation stimulated so that subsequent inunctions of cod liver oil will be beneficial for nutrition and protect from cold. By cold bathing we stimulate the nervous system, and also train the economy to adapt itself to sudden changes of temperature without producing morbid reactions. Frictions after the cold bath will stimulate the capillary and lymphatic circulation.

The urinary secretion should be under constant observation, particularly its specific gravity. The specific gravity is usually increased. It is an indication for the administration of more fluids. A patient may take with advantage artificial lithia water or sterilized soft water, or better still, distilled water.

Of the alimentary organs, the liver demands the closest attention. Its influence for good or bad results is very great. It is called the graveyard for

blood cells. When there is a hard fight within the economy we have reasonable evidence that many phagocytes are killed in the encounter. The cells break down in the liver, and thereby increase the specific gravity of the bile. The demands upon the liver are frequently beyond its capacity for work. These cells, however, must be removed or the products of their disintegration will cause auto-infection.

These products, leaking, as it were, into the blood, make a very unphysiologic environment for the living phagocytes. Occasional minute doses of calomel, or preferable, as indicated biniodid of mercury, should be administered to reduce the pressure in the bile ducts. Free use of hot water will reduce the specific gravity of the bile. It may be well to stimulate the parenchyma by the usual remedies. A liver that has a normal capillary and biliary circulation will not let poisonous alkaloids leak (percolate) into the blood. Any abnormality in this direction causes passive pressure in the stomach and bowels that will retard digestion and assimilation. We must guard against prolonged retention of intestinal contents. Careful attention to the alimentary canal and its tributaries will result in greater capacity to digest food and prepare it for oxidation and assimilation We all realize that the demand of the economy for abundant nourishment is very great in all these cases. Occasional flushing of the colon with sterilized water is worthy of attention. We must endeavor to keep up a vigorous circulation by vaso-motor tonics, systematic exercise, and massage.

Special attention should be given the nasal cavities; all obstruction to free admittance of air must be removed. They must also be kept scrupulously clean. We now come to the most important of our consideration of the treatment of tuberculosis of the lungs. It is not what shall we do with the bacilli, for this is a secondary matter, but the all important and vital question of how shall we maintain, restore or increase the capacity of the lungs? No part of the treatment has been more unsatisfactory in the past, and indeed, no part more disregarded. It is a fact that the largest majority of people with acquired tuberculosis of the lungs have not learned one of the greatest lessons in life, that of physiologic breathing.

Collapsed vesicles, hyperemia and lymph stagnation are nature's punishment for a disregard of her endowments. The decree of nature is, that a neglected organ will atrophy and degenerate.

It is an easy matter for plugs of mucus to settle in the vicinity of collapsed vesicles and there decompose. These mucous masses under normal conditions are expectorated. Wherever we have decomposing organic material there we shall find a plentiful supply of micro-organisms. It is a practical question to ask, how shall we open up these vesicles and relieve the hyperemia and lymph stagnation? It is a source of great pleasure to bring to your attention an apparatus, or instrument, called by the manufacturer, a pneumatic dilator, the principles of which are based upon the most sound philosophy.

Dr. Hawley describes it as an apparatus for preparing and administering nebulous medication by a process of forced dilatation, the basis of which is the discovery that the lips will act as a safety valve and that, into any tube, cavity or valve or air cell into which air can be forced by high pressure, the nebulous medicament prepared by this apparatus, can be forced with absolute safety, thereby enabling the physician to use agents that are capable of preventing or controlling disease.

This discovery makes an important epoch in practical medicine. We should all grasp these principles with ecstasy for they tear open the thick clouds of despair that surrounded the wretched victims of this disease. I extend to it my fondest hopes for success, as it is destined to save many lives, of those otherwise doomed to an untimely grave. The praticability of the apparatus and process is self-evident. The principle is sound logic and not theoretical uncertainty. A full and elaborate illustrated description of the apparatus and process by Hawley has been published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

But I have brought the apparatus here for your inspection, it will speak more eloquently for itself than any words of praise from me. As a prophylactic measure it is invaluable. One in health has but to experience the feeling of well-being by a single dilatation in order to appreciate its capabilities. There is absolutely no danger of rupturing either vesicles or tympanum, as the pressure is uniform, the lips giving perfect protection. By it the cardo-vascular and the pulmonary capacities are greatly increased, and to use the words of Solis Cohen, "resulting in increased function, increased elimination of waste products of function; with increased buoyancy of spirits which is no mean factor in treatment; in a word, heightened vitality."

That the capillaries throughout the body are wonderfully influenced is evident from the fact that the cold hands and feet become warmer. Williams also believes that dilatation of the alveoli in the neighborhood of the various lesions produces an important localizing effect and thus tends to prevent the spread of tuberculosis by secondary infection, from a caseous center or from a secreting cavity with inflamed walls, while the emptying of the vessels and of the capillaries of the region through alveolar dilatation leads to the absorption of caseous and cretaceous tubercular deposit. There is no more ideal treatment to prevent hemorrhage or control it after its occurrence, as it relieves the engorged vessels and removes congestion.

The mechanical principle of forced dilatation with air itself, you clearly see is invaluable; with these dilators, however, we can force into the lungs, the finest medical nebula imaginable. Ordinary inhalers for medicated air may be discarded, as we can not reasonably expect the medicament to get past the reserve air left after the most extreme expiration. They are regulated by the patient's will and consequently not satisfactory. By forced dilatation with nebulous medicament we overcome obstructions which offer an impassable barrier to ordinary inhalations. We can easily imagine the rapid diffusion of fine medicated nebula with the reserve air; and thereby attenuating, at least, the micro-organisms. We will demonstrate the explosive effect desired in order to remove the decomposing pulp of mucus. One bottle contains medicament for cough and all manner of bronchial irritation. The other contains the local specific for these cases—free iodin and chlorid of gold with menthol enough to mask the taste of the iodin. We can hardly realize the extent of the absorbing surface of the bronchi.

In addition to local effect, we also get systematic effects from absorption. For enlarged lymphatic

glands and lymph stagnation, the iodides are held in high esteem by general consent.

Above all else, however, we must endeavor to get as much pure air as possible into all these cases, as normal oxygen is the best excitant of the recuperative forces latent in all cells.

I have thought it waste of time to enter into consideration of the numerous remedies as we are all very familiar with their merits.

SOME REMARKS ON TEST MEALS.

Read by title in the Section on Practice of Medicine at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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BALTIMORE, MD.

Test meals are given for the purpose of testing the digestive and motor power of the stomach, and thus judging of the condition of the mucous membrane and its glandular elements, as well as of its muscular action and its size, for an enlarged, or rather dilated, stomach depends chiefly upon these conditions.

The test meal now almost universally employed is Ewald's test breakfast, consisting of 30 to 50 grams of bread and 300 c.c. of warm water, or tea without sugar or milk.

One hour after this meal a soft, elastic tube is introduced into the stomach, and the entire contents of the stomach brought up, either by attaching an aspirator apparatus to the tube, or by pressing with the hand at the epigastrium, and encouraging the patient to assist this pressure by contraction of the abdominal muscles as it is done for defecation.

Other test meals have been suggested:

Leube-Riegel's consists of 300 c.c. of soup, 60 to 120 grams of meat and 50 grams of bread with 250 c.c. of water, and either the contents are aspirated or pressed out four hours later, when we expect the height of digestion, as we do one hour after the bread and water meal is taken, when it ought to be entirely empty, if both digestive and motor power are good.

Klemperer advises milk and bread, and two hours later, aspiration. The same time is recommended after the test meal of Germain See, which consists of 60 grams of scraped meat and 30 to 50 grams of bread.

Jaworsky's test meal is very complicated and requires a complete cleansing of the stomach by lavage, a meal of the whites of one or two boiled eggs and 100 c.c. of water, and aspiration every quarter hour for one and one-fourth hours, when the aspirated water becomes clear and acidulated and possesses digestive properties.

Boas advises as a test supper for atony a light meal late at night and lavage next morning, when the normal stomach is empty, while the atonic is not.

It is admitted that every one of these tests is useful, and that every investigator may reach good results with the method he prefers. The food obtained is in a state of advanced digestion, and permits the corresponding conclusions by inspection of the whole contents, by examination of the residue of the filter, and by chemical examination of the filtrate, which represents a true stomach juice at the height of action.

The Ewald breakfast gives these factors as well as the others; its use is very simple, and the masses we have to deal with are very clean and easily distinguished. Yet the disadvantage connected with this, as well as with other test meals heretofore used, is the necessity of obtaining the entire contents of the stomach before one can judge if the muscular functions are normal. In health the entire residue after one hour should not exceed 20 to 50 c.c.

A further disadvantage of Ewald's test meal is, that it demonstrates the functions of the stomach in regard to only a very limited amount of work. For instance, Honigmann as well as myself, have found that with a more complicated test meal, *i. e.*, Leube's, the results with the same person showed marked differences. No impaired condition was found with the Ewald test meal, yet when a Leube test meal was used, the result was strikingly different.

Ewald and Boas advise in doubtful cases, the control test with a Leube-Riegel meal. These two factors, the necessity of a controlling test meal, and especially the importance of gaining by aspiration or pressure the entire contents of the stomach, is a great annoyance in private practice. It is very often the case that the patient is available only for a limited time and that repeated sittings can not be had to accustom him to the use of the tube; furthermore, by expression or aspiration parts of the mucosa are easily drawn or forced into the fenestræ or eyes of the tube, especially with patients not used to the manipulation, a factor which will be very unpleasant where peptic ulcer may exist, and where you may be especially anxious to gain an idea of an existing hyperchlorhydrie or at least hyperacidity. This objection can be made equally against the Einhorn bucket, which is very apt to bring up pieces of the mucosa, and is certainly not swallowed and removed more easily than a very soft, thin, elastic tube.

The following simple modification of the present test meals does away completely with all these inconveniences, and has been employed by me exclusively for the past three years to my greatest satisfaction.

I make the patient take early in the morning 30 to 50 grams of cold roast, free from all fatty and skinny parts and cut into small pieces one-eighth of an inch wide and about half an inch long; further 250 c.c. of warm milk, or milk and water, and 30 to 50 grams well-toasted wheat bread (dark-brown toast) or Zwieback. Four hours after this meal, 30 to 50 grams of stale wheat bread without crust or toasted particles, and 300 c.c. of warm water, or tea without sugar or milk. One hour later I introduce a thin, soft, rubber tube with two eyes near the lower end; this tube is inserted to the depth of from 50 to 60 cm. to reach the bottom of the stomach. In the case of tall persons, and of those in whom a splashing sound may be detected below the navel I prefer to insert it 60 cm. The tube is allowed to remain a few seconds, until some retching takes place, when it is slowly and carefully withdrawn, and in the case of great distress even without waiting for any contents of the stomach to appear at the upper end; if without any effort some flows out and a larger quantity can be obtained, so much the better. As soon as the stomach end of the tube leaves the mouth it is held upward and over a porcelain dish; by blowing gently into the upper end a sufficient quantity of the stomach contents (generally from 3 to 6 c.c.) is obtained to enable one to make all required tests. You see at a glance whether residues of the first meal are present or not. If there is only a milky, chyme-like addition to the bread and water, and no undigested casein, meat or toast, you know that the *motor* but not the

digestive function is more or less impaired. In health there should be nothing but what appears after a regular Ewald test meal. If casein and meat are undigested and the latter even apparently hardened, you know that there is sub- or anacidity and impaired albuminous digestion; if there are mostly pieces of toast, you have hyperacidity and impaired starchy digestion. The small quantity of stomach contents gained, shows before filtration every other abnormal addition, such as blood, surplus of mucus, bile, etc.

You can use red and blue litmus paper, Congo paper, and the Dimethylamidoazobenzol test. You can then gain enough filtrate to determine the degree of acidity, and to try the Uffelmann carbolic acid and chlorid of iron test for lactic acid, the phloroglucinvanillin test for even an approximative, quantitative muriatic acid, the biuret reaction for a peptone and propeptone test, the iodin test to prove the absence or presence of starch and erythrodextrin, and a few drops for a rennet, or rennet zymogen test, and even a few drops to pour on a small piece of the white of an egg (hard boiled), or fibrin, for the pepsin test. You can do all that is generally done after a regular test meal, and have a perfect picture of the previous, more complicated digestion as well, especially for the estimation of the muscular power.

I have repeatedly convinced myself with others, as well as with my own stomach, that the tube always brings up portions of the first meal if any are still present in the stomach.

In introducing the tube a second time, pressing out every trace of the stomach contents, and using lavage until clear water appeared, I could always convince myself that the small quantity contained in the tube was a true representative of the entire contents of the stomach at the time. Nothing else could be expected, for we know from Beaumont's experiments with his Canadian, that those food particles which are not in proper condition to pass through the elective pylorus, either in consequence of chemical or other abnormities, are thrown back into the stomach, even up to the cardia.

This fact is quite in accordance with the daily experience of eructations of food particles, which, indigestible pro-tempore, often show the taste of an article taken with a former and not the latest meal.

It is easily understood that the first meal will permit different modifications, and may, for instance, consist of rice, soft-boiled eggs, meat and milk or water; provided that it consists of articles of food which in health will disappear within a given time, and which will at the same time represent the albuminous, starchy and fatty types of food, in a way that the particles which remain undigested will show a conspicuous difference from the second meal, and not be large enough to obstruct the eyes of the tube.

It is clearly demonstrated that an amount of material fills the stomach tube when the latter reaches the fundus, which is sufficient for all clinical purposes, especially for the demonstration of the motor, as well as of the digestive faculties of the stomach, and that by this method these results are reached in a way the least troublesome and dangerous for the patient, and most convenient for the examiner, whether he makes his investigations from a physiologic or pathologic standpoint.

I can not close these remarks on test meals without alluding to a very important modification, which is the result of the untiring efforts of Boas to gain positive diagnostic means, in cases where cancer must be suspected, but no tumor can be palpated.

He advises lavage in the morning, until the water becomes perfectly clear without any reaction whatever, then a test breakfast of a soup prepared of one tablespoonful of flour free from every trace of lactic acid and not apt to form it. He designates a special kind of oatmeal (Hafermehl) for this purpose. The amount of water to be used in preparing the soup he gives at 500 c.c.; after one-half hour (the average time in his experiments) the contents of the stomach are aspirated and examined. With these precautions, and only then, he found lactic acid present (with but very few exceptions) only in cases of malignant disease.

SPASMODIC ASTHMA CAUSED BY AORTIC ANEURISM.

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It seems to me that a form of dyspnea, which closely resembles spasmodic asthma and from which it seems at times impossible to differentiate it, as a symptom in aortic aneurism, is important enough to deserve especial notice. In the three cases I am about to report it was a prominent and distressing symptom while other symptoms of aneurism were rather obscure. Asthma from aneurism is no doubt caused by pressure on the pneumogastric nerve and is not always continuous as might be supposed, for in one of my cases the patient had only three attacks in all and these occurred at irregular intervals during the last two months of his life. In the other cases this symptom was continuous but with marked remissions.

In obstinate and persistent cases of asthma in elderly persons, aneurism should always be born in mind as a possible cause, for in the absence of bruit, impulse, swelling, or circulatory disturbances it is not always easy to make a correct diagnosis. The pressure symptoms which cause changes in the pupil, paralysis of a vocal cord or unilateral sweating are not sufficient, as any other mediastinal tumor may produce the same effects.

"Tracheal tugging," first described by Surgeon-Major Porter of the British Army is a symptom of great value. It is brought out by taking hold of the cricoid cartilage when the patient is sitting with the neck relaxed, and putting the trachea slightly on the stretch. If there is aneurism of the arch, a distinct tugging of the trachea is felt with each pulsation of the heart.

Case 1.—J. F. C., aged 60 years, native of Maine, was admitted to the Marine Hospital at Boston, Mass., June 14, 1888, with this history: Was first taken a year before with pain in left side of the chest from breast to back and in the left shoulder. Slight cough and once expectoration of a little red blood. Felt well after this until winter, when, after "taking cold," the pain and cough returned, there was nausea, unpleasant symptoms after eating, and loss of flesh. In appearance the patient was thin, with unhealthy color of skin, suggesting malignant cachexia.

Respiration in the left lung was weaker than in the right, but the heart seemed normal and no bruit nor tumor could be detected. There was little change, patient expectorated blood two or three times, until about two months before death when he was suddenly taken with extreme dyspnea with all the signs of constriction of the bronchial tubes on both sides, râles, wheezing and orthopnea, lasting an hour or two when it was in a great measure relieved by morphia.

In a day or two he was about as usual until the next attack, having in all three severe attacks and dying in the third.

Necropsy.—Left lung weighed 170 grams, was small, atrophied and the seat of a low grade of inflammation: its pleural cavity was obliterated by adhesion. Right lung weighed 250 grams, congested, some adhesions of pleural surfaces. Heart weighed 310 grams, valves normal. The sinuses of Valsalva were incrusted with calcareous nodules, the aorta dilated at its origin to double the normal size and gradually increased to the beginning of the transverse portion of the arch where the expansion was much greater and formed the beginning of a large fusiform aneurism which extended from this point to the lower border of the seventh dorsal vertebra, including the left sides of the bodies of five vertebræ with the heads and necks of the corresponding ribs. The posterior wall of the sac was formed by the exposed bone from the third to the seventh vertebra inclusive. The bodies of all were more or less eroded and the heads and necks of the fourth and fifth ribs had been completely absorbed. The spinal canal was intact. The walls of the sac were thick and firm with deposits of organized clots in places interspersed with plaques of carcareous material. The edges were firmly adherent to the vertebræ and there was no rupture. Capacity of the sac about fifteen hundred cubic centimeters, nearly filled with loose antemortem clots. There was evident pressure on the left vagus nerve.

Case 2.—G. C., aged 57 years, native of the United States, was admitted to the marine ward of the German Hospital, Philadelphia, July 15, 1895; died July 19, four days later. Patient stated that he had been suffering from asthma (according to his physicians) for nine months constantly, though at times he was better. On examination there was orthopnea, prolonged expiration, wheezing, râles all over chest, respiration weaker in right lung, and occasional cough. Circulation and heart sounds apparently normal, though the examination was not satisfactory owing to the râles and dyspnea. Aneurism was diagnosed as probable, chiefly on account of the persistent dyspnea and the feeble respiration in the right lung. Tracheal tugging was not sought. Of various remedies tried morphia afforded most relief, but the dyspnea continued and the patient died from exhaustion.

Necropsy.—Heart hypertrophied, especially the left ventricle; atheroma of the base of the aortic valves though the valves were competent. The aorta was dilated and from its arch, anteriorly, between the origin of the arteria innominata and left common carotid, arose a saccular aneurism, capacity about four hundred cubic centimeters, filled with a hard, laminated, grayish clot. The edges of the sac were attached in front to the posterior surface of the manubrium between the first and second ribs, the bone being eaten through on the right side, but forming scarcely a perceptible bulge in front. The lumen of the aortic arch seemed little, if at all, encroached on, the tumor pressing especially on the arteria innominata, the right bronchus and right pneumogastric nerve. There was no rupture of the sac and death must have been caused by pressure on the vagus nerve.

Case 3 has not yet come to a necropsy. J. B., aged 48 years, native of Maine, a tall, 6 foot 3 inch, powerful-looking man, was admitted to the marine ward of the German Hospital, Philadelphia, Sept. 18, 1895. History: Family history good; admits gonorrhea, denies syphilis; had "rheumatism" in 1866, but no fever nor swelling of the joints; has had slight cough with expectoration of mucus for three years. For the past eight months says he has suffered from "asthma" which is worse by spells and generally worse on lying down. Three months ago he was taken with pain in the right shoulder, right side of the neck and left knee. Examination: Breathing high pitched over both lungs. Numerous râles, coarse and fine, over both lungs, especially at end of inspiration. A diastolic murmur was heard over the upper part of the sternum, but no thrill nor pulsation could be felt and there was no pain nor swelling. Hard, dry, high-pitched, metallic cough at intervals of half hour or hour, night and day. No inequality of the pupils, but he states that the right side of his face sweats more than the left. A distinct though slight tracheal tugging is perceptible with each heart pulsation.

The diagnosis was aneurism of the arch of the aorta. October 17, patient asked attention to a swelling behind his left knee which he first noticed three months ago. There was some pain at first but lately he has felt only weakness in the leg.

An aneurism as large as a pigeon's egg was detected in the popliteal space. By an oversight his leg had not been examined before.

October 26, pulsation can now be felt over the right sterno-clavicular articulation and there is unmistakable bulging on this side, thus removing all doubt, if there were any left, as to the correctness of the diagnosis.

The patient was put on the Valsalva-Tufuell treatment but could not stand it and was allowed to get up. The operation of ligation of the subclavian and carotid arteries was explained to him but did not meet his approval and he was discharged at his own request. Nov. 4, 1895, not improved.

PURULENT OPHTHALMIA.

Prepared for the Mitchell District Medical Society of Indiana, Dec. 26, 1895.

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Purulent conjunctivitis should have a degree of significance to the physician according to the character of the infection and the age of the patient. While there are many varying degrees of intensity, for clinical purposes, it is best to recognize but two causes; the gonorrheal and the endemic.

The gonorrheal is most malignant and intractable; it seldom occurs in both eyes simultaneously. It is most common in adults, and is the result of contagion. The endemic is equally contagious and differs in its clinical features from the gonorrheal type in degree of severity and extent of invasion. In gonorrheal inflammation, the cocci not only attack the mucous corpuscles and surface epithelium, but penetrate quickly into the mucous follicles, which become greatly distended, causing such interruption in the circulation of the blood in the capillary coils surrounding the follicles that great edema is quickly set up, producing a degree of swelling of the ocular conjunctiva often quite sufficient to very nearly overlap the entire cornea, giving to its vertex a decidedly umbilicated appearance.

These phenomena are never seen in the endemic form, which depends upon the presence of one or the other of two varieties of staphylococci. The disease in its earliest stages, presents a golden yellow colored pus, or a cream colored stringy muco-pus. In the gonorrheal infection there are always extensive abrasions of the surface in the lining of the lids. In the endemic type this never occurs, and while there are in reality two distinct forms of staphylococci which produce purulent conjunctivitis, one of them stringy, the other golden yellow, there is little difference in degree of severity and in the clinical course of the inflammation. In the new-born, the endemic is the most common type of purulent inflammation, and it is vastly more dangerous to the cornea, than in adults. It is extremely doubtful if any case of gonorrheal conjunctivitis ever resulted from maternal infection in the course of natural delivery. In the first place, as is well known, the skin of the fetus is everywhere covered with the vernix caseosa, the eyes being closed. After the birth of the child, when the eyes are opened, the lash lifts away all external matter, and its arrangement along the free borders of the lids is such as to constitute a practically impassable barrier for any matter that might be lodged upon the skin, even if it be of a fluid nature. When the nurse undertakes the removal of the cheesy coating from the skin, the eyes are frequently inoculated with whaever matter may be on the rag or sponge. Staphylococci are nearly constantly present about the finger nails and sponges handled by untidy persons; and simple muco purulent vaginitis, with which the mother or nurse may be suffering, constitutes a vastly more common source of inoculating

the eyes of the infant through the carelessness or ignorance of the nurse than any possible gonorrheal state of the maternal passages.

Did you ever think for a moment, those of you who have seen gonorrhea in the female, how it almost invariably provokes miscarriage, or abortion; and, how, if it exists prior to pregnancy, it makes that condition impossible during the existence of the infectious inflammation? It is extremely rare that a pregnant woman, in the advanced stages of gestation, contracts gonorrhea, and yet this would appear to be the only class of cases in which gonorrheal ophthalmia neonati might be possible from maternal infection. Credé concluded that purulent ophthalmia neonatorum might always be prevented by having the new-born subjected to an instillation of a 2 per cent. solution of nitrate of silver into each eye. In the attempt to carry out this suggestion, the eyes of many are infected which might otherwise escape. Under strictly antiseptic rules, Credé's method might possess some virtue, but with the always to be desired and ordinarily aseptic conditions, all interference with the eyes is unnecessary, and even meddlesome. In the obstetric wards of a general hospital, the most abundant evidence of the faults of this system, owing it may be to the imperfect methods of those in charge, have been clearly apparent. Since the attempt to employ Credé's method, but few children born in that hospital have escaped purulent ophthalmia, a disease comparatively unknown there prior to the attempt to introduce this system. The best protection for the eyes of the new-born in public institutes where asepsis is easily maintained should be complete non-interference. Where sepsis may reasonably be feared, the nurse who takes charge of the infant should be an entirely different person from that one who takes charge of the mother. The only proper course to pursue, in such dangerous conditions, is to insure complele isolation until after all those preliminary stages relating to the cleansing and dressing of the infant have been completed. If the nurse in charge of the infected mother is permitted to touch the eye of the infant, experience shows that infection of the eyes will be almost inevitable. Neither Credé's solution, nor any other chemic agent may prevent disaster. I have known an interne within ten minutes after delivery, seize the infant and, separating its eyelids with his fingers, order the silver solution instilled by the nurse; next day purulent ophthalmia appeared. The mother was not then infected, but had two days later well characterized puerperal fever. The interne had examined an infected woman before delivery. In other cases, the child's face and neck are washed and wiped off with a rag, which is subsequently folded upon the nurses finger and employed to remove adhering particles of vernix from the vicinity of the inner canthus, the same process being repeated at subsequent ablutions. In due time they are inflamed, and the maternal passages are accused. I am convinced that, if physicians and nurses generally, as is the custom in private practice, could be taught the danger of attempting to touch the eyes, much more good would be accomplished than it would be possible to secure by the use of any kind of chemic antiseptic agent. The aseptic rule in this field is just as precious as in any department of surgery, and the attainment of antiseptic principles just as difficult and uncertain.

As to the treatment of the varying forms and stages of purulent conjunctivitis, it seems to me necessary that something should be said. It has been too long the custom to seek chemic antidotes for specific types of inflammation, and to regard all the purulent forms of conjunctivitis as the old-fashioned doctors did similar processes in the male urethra. It was long the custom to treat such cases with active caustic applications, and powerful astringents. Experience must have convinced any ordinary observer that these methods of practice are not only dangerous, but rarely curative. The most successful treatment of gonorrhea in the male is through the medium of the circulation, and not by local injections; and where these are practiced in the advanced stages, they are of a far milder character than were formerly employed. The same rule applies to the treatment of gonorrheal inflammation in all mucous membranes, whether it be the conjunctiva, the vagina, or the urethra. The object being to keep accumulating matters constantly washed away, and to so sterilize the surfaces as to retard the activity of the growth of the ferment, and, in this way, the earlier stages of the disease are held in such control as to prevent deep seated invasion, and consequent necrosis of the cornea. In the more advanced stages of the infection such stimulating agents as do not impair the vitality of the young epithelial cells may be employed. Astringents are, however, never to be used here. In the first stages of gonorrheal infection, bichlorid of mercury in the proportion of one-sixteenth of a grain to the ounce of water containing ten grains of chlorid of sodium, may be freely used with the irrigator every ten minutes, until there is manifest abatement of the discharge, when the interval may be gradually prolonged until finally, when no more pus is formed, it may be discontinued altogether. In the virulent gonorrheal types of inflammation, Jeanel's emulsion of copaiba may be instilled every four hours with great advantage. To illustrate this treatment, permit me to recite the case of C. L., aged 19: He came from the country with gonorrheal ophthalmia of four days standing; the cornea in the right eye had already sloughed, leaving the iris exposed in the central portion; a small part of the superior pupillary margin being still protected by an overlapping edge of the posterior elastic layer of the cornea, led me to employ sulphate of atropin solution in the attempt to dilate and thereby retract this part of the iris from the vicinity of the perforation. The cornea throughout all the remaining portion was so infiltrated and opaque as to make it impossible to see the iris. In the left eye, the cornea presented a gray, cream color, the surface epithelium being thoroughly infiltrated and abraded in small areas. The urethral discharge was very profuse, as well as the discharge of pus from the conjunctiva. I gave him five minims of balsam copaiba, in a capsule, every three hours, and two drachms of Rochelle salts, in one pint of water every morning. He was directed to have his eyes irrigated every ten minutes with the following:

R.	Bichlorid of mercury	gr. viii	48
	Chlorid of sodium	ʒ iii	90
	Distilled water	cong. i	3840
	Sulphate of atropin	gr. ii	12

He used, as a collyrium, every four hours, the following:

R.	Jeanel's emulsion of copaiba	ʒ ii	60
	Distilled water	℥vi	24

Two weeks after admission to the hospital he returned home, able to read with the left eye, and to count fingers across the room with the right. This result could not have been attained by any very widely different plan of treatment.

ILEUS.

BY JOHN B. MURPHY, A.M., M.D.,

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CHICAGO.

(*Concluded from page 22.*)

Mechanic ileus.—In the diagnosis of internal strangulation, no matter from what cause, we have exactly the same symptoms as in strangulated hernia, except the physical signs are different. The symptoms of internal strangulation are as follows: Pain in the abdomen which comes on suddenly, gradually increasing in intensity for the first half hour, followed by nausea and vomiting, and inability to produce bowel movement. If the strangulation be severe, there is an increase in the frequency of the pulse (but as a rule in the early stage the pulse is not accelerated), *absence of temperature*, absence of tenderness. As the case advances, if the strangulated coil be large, it can be recognized through a moderately thin abdominal wall by its distension; the coil of the intestine leading to it may also be recognized by a circumscribed elevation of the abdominal wall. In twenty-four hours all of these symptoms will have increased in severity. The distention of the coil is greater, the abdomen is more tympanitic, sensitiveness at the seat of obstruction is now manifest, and the increased resistance of the occluded coil may be felt. If the coil be small, the increased resistance of the intestine on the proximal side of the occlusion may be felt and a circumscribed dullness be outlined. This varies with position, depending upon the portion of the intestine involved in the strangulation, as shown in the von Zoege-Manteuffel plates. *Peristalsis is very greatly increased and is most pronounced in the neighborhood of the obstruction.* This increase in peristalsis continues *until peritonitis* sets in, when it entirely disappears. If the strangulation be sufficient to produce gangrene the depression will be more marked, but the local manifestations unchanged. *Opiates paralyze peristalsis for hours and therefore should never be given in acute intestinal lesions* as they obscure the symptoms and signs of the pathologic process.

The following cases are good illustrations of internal intestinal strangulation:

Mr. C., aged 37 years, robust, had always enjoyed excellent health. Six days before admission to the hospital was attacked with pain in the abdomen, moderately severe, followed by nausea, persistent vomiting, and inability to produce bowel movement. The symptoms continued notwithstanding intestinal irrigation and frequent doses of cathartics. When admitted the pulse was 100; temperature 99 degrees, and it had not exceeded that at any time since the onset. Expression good; abdomen very tympanitic, greatest distention being just above the umbilicus. Increased resistance in neighbophood of umbilicus; abdomen slightly sensitive. Diagnosis intestinal obstruction. Laparotomy. A loop of bowel was found twisted around a Littré diverticulum attached to the umbilicus, evidently congenital. The coil was distended, cyanotic, surface glistening but not gangrenous. There was no peritonitis. The diverticulum was ligated, excised and invaginated, the coil liberated; circulation became reëstablished, and the abdomen closed. Time occupied in the operation twenty-five minutes. The patient's pulse increased in rapidity, the vomiting subsided, the bowels moved freely, nevertheless, he died nine hours after the operation. Post-mortem showed no peritonitis; strangulated portion of the intestine congested but not perforated; mucous membrane ecchymotic; small veins thrombosed.

What was the cause of death? It was certainly not the strangulation, nor peritonitis, but auto-infection either from absorption of the decomposed proteids that began rapidly after the liberation of the obstruction, or an auto-infection through the thrombosed intestinal veins, more likely the former, as we have exactly the same results where the gangrenous intestine and infected veins have been resected.

Case of internal strangulation in a sub-peritoneal pocket at left internal inguinal opening;

Mr. C., age 22 years; printer. On the morning of October 25, when lifting a heavy case, "felt something give way" in the left inguinal region. The pain became so severe he was compelled to stop work and go to bed. Six hours after the onset vomiting began and continued at frequent intervals up to the time of operation. Impossibility to produce bowel movement. I saw him three days after the onset of symptoms. *Status presens:* Face sunken, eyes prominent, anxious, depressed expression; pulse 90, temperature 98.8 degrees; breathing somewhat labored. Abdomen tympanitic, most prominent in lower left portion; resonance irregular; sensative over left inguinal ring; a slight induration could be felt above and to the left of the internal ring. The inguinal canal was free, the finger could be passed through it. Peristalsis was greatly increased; rectal examination negative. The patient located the difficulty in the left inguinal region.

Diagnosis: Internal mechanic ileus. Section; median incision; passed the hand down to left internal ring, found the coil bound fast at the ring. Exposed the parts and found a peritoneal pocket extending upward and to the left subperitoneal, *i. e.*, between the parietal peritoneum and the muscular fascia. Incised the constricting ring and opened pocket; bowel in good condition; not resected. Peritoneal sac removed and opening sutured. Abdomen closed. Rapid recovery.

Case of strangulated diaphragmatic hernia. Referred to me by Dr. Richard Haley:

J. H. M., age 31 years; single. Admitted to Mercy Hospital July 15, 1895. The patient, a well-developed, muscular brakeman in excellent physical condition, states that he has had repeated attacks of abdominal pain and vomiting with inability to produce bowel movement in the last six years, usually lasting from ten to twelve hours; had never had a severe injury. The pain was always located in left hypochondrium. Present attack began six days ago with the usual symptoms, slight pain in left hypochondrium; vomiting, not excessive, biliary in character; no passage from bowels of gas nor feces from that time. *Status presens:* Patient's expression good; pulse 86, temperature 98.7 degrees; breathing somewhat labored; abdomen very much distended. Borborygmus so marked that it could be heard in any part of the room; pain not severe; tenderness most marked in left hypochondrium, but nowhere excessive; auscultation revealed increased peristalsis, most marked in right hypochondrium, but present in all portions of abdomen; percussion elicited areas of dullness over lower half of abdomen, largest to right and below umbilicus; they were outlined with ink on the surface of the abdomen and changed position while being transferred to the hospital where he was re-examined. The transverse and ascending color could be outlined by inspection and percussion. They were greatly distended. Section: median incision; small quantity of serum escaped. The sigmoid flexure found contracted and empty; followed it up to large bowel and the latter to splenic flexure, which could not be drawn into the field. Small intestine was very much distended with fluid feces. The colon ascendens and transverse enormously distended with gas, but contained no feces. The greater portion of the bowel had to be turned out to allow access to the obstructed splenic flexure of the colon. A careful examination showed the cause of the obstruction to be a strangulated diaphragmatic hernia; the opening was situated two inches from the ribs and about the junction of the posterior with the middle third of left leaflet; it was most difficult to reach. Traction failed to move the strangulated portion. With the greatest difficulty the tip of the finger was inserted under the edge of the ring, which was divided on the finger with scissors. The intestine was liberated and examined; the circulation was rapidly restored; no

resection necessary. The intestines were removed from the warm protections and returned by the "towel method" of reduction, which I have used on many similar occasions and found very effective. Abdomen closed. The sphincter ani was then paralyzed by over-stretching.

In the operation the patient had excessive and true fecal vomiting. This was accounted for by the obstruction being so far down in the large intestine. Patient's condition fair when the operation was completed. Had copious and frequent bowel movements three hours after operation. Soon showed severe symptoms of shock; pulse rapidly increased in frequency; in seventeen hours it had reach 142; temperature 105.2 degrees. Hippocratic face with marked excitement and anxious mental state. This condition continued until death, which occurred forty-three hours after operation. Post-mortem was not permitted.

Volvulus is a rare form of internal ileus. By volvulus we mean a twisting of the intestine upon itself for more than two-fifths of a circle; less than this does not produce obstruction. We have all the symptoms of ileus; the pain is mild; the vomiting is persistent; inability to produce bowel movement; absence of temperature. In the early stage the patient shows very little depression; pulse negative. As soon as the coil of the volvulus becomes distended, it can be recognized by its shape through a moderately thin abdominal wall; the local meteorismus; increased resistance local; great increase of peristalsis until peritonitis supervenes. The following case, referred to me by Dr. J. L. Piper, is typical:

Fig. VII

Mr. S., aged 68. Nov. 10, 1893, was seized with pain in the abdomen shortly followed by vomiting, inability to produce bowel movement; slight tenderness; diagnosis by Dr. Piper, intestinal obstruction. I saw him thirty hours after the onset of symptoms; he then had but little pain; the vomiting was frequent and severe, the matters ejected yellow and offensive; pulse 72; temperature normal; abdomen distended, most prominent a little below and to the right of umbilicus; increased resistance at this point; tympanitic; excess of indican in urine. Patient removed to Presbyterian Hospital. Celiotomy. The hand was passed down to the right and the distended coil drawn into the opening. The distended intestine measured over two and a half inches in diameter; a coil of 12″ was found twisted upon itself; when this was straightened a loud report was heard from the escape of gas; there was no gangrene nor peritonitis; intestine returned. Patient made an excellent recovery.

Frequent in the benign mechanical obstructions is cicatricial contraction of the intestine itself. In these cases the onset is gradual, so much so that the patient suffers from intestinal disturbance a long time before the final occlusion takes place. This occlusion frequently manifests itself as a seizure with pain, nausea, vomiting, no elevation of temperature, no change in pulse, inability to produce bowel movement. Note following case:

Mrs. E. T. S., aged 53, referred to me by Dr. Jas. J. Fortier. The patient, three days previous, was suddenly attacked by pain in abdomen, persistent vomiting, inability to move bowels. These symptoms continued until time of operation. When patient entered Post-graduate Hospital she still complained of pain; slight tenderness. A hard tumor the size of a child's head could be felt just above the symphysis; abdomen tympanitic, slightly tender, greatest resistance on the left side of tumor; percussion note except over tumor resonant; pulse 96, temperature normal. Diagnosis, dermoid cyst; intestinal obstruction, probably from bands. The patient stated positively that the tumor was not present until the attack came on, but this was not credited. Laparotomy June 2, 1893. Median incision; dermoid removed; distended coil of intestine drawn out and with it a stricture, a cicatricial band complelety occluding the bowel for one inch; resection of two inches of bowel and end-to-end approximation with button. Time for making resection five and a half minutes. Time for entire operation—removing dermoid, making resection, and complete closure of abdomen, nineteen minutes. No drainage. Convalescence uneventful; button voided on the tenth day. July, 1894, patient in excellent health.

Invagination (intussusception) occurs more frequently in children than in adults. The onset is sudden; the patient usually gives a piercing shriek from pain in the abdomen; depression produced is very great; the pulse increases rapidly in frequency; the vomiting is persistent; the eyes sunken; cold perspiration. These symptoms continue for about two hours, when they gradually diminish. The vomiting persists, but is less severe; after twenty-four hours blood may be detected in the stools. The following case was referred to me by Dr. F. S. Hartmann: Baby. B., aged 7 months, shortly after nursing gave a loud and piercing cry and began to vomit; cold perspiration and collapse. When seen by Dr. Hartmann a few hours later, pain was less severe; a distinct oblong tumor could be found in the right hypochondriac region just below the margin of the ribs; no bowel movement could be produced. The same afternoon the patient was removed to Cook County Hospital. Laparotomy ten hours after onset of symptoms. Tumor in right hypochondriac region was very distinct; median incision; tumor grasped with the fingers and found to be the cecum and colon into which the ileum was invaginated. Very friable adhesions had formed, but pressure upon the colon forced the ileum out without traction. Abdomen closed; perfect recovery; patient left hospital after seven days.

When the obstruction is due to a gall-stone or a foreign body in the intestine, the symptom of vomiting is very marked, the meteorismus is less and the depression less, as the foreign body is constantly changing its position and advances further in the intestinal canal.

The following case illustrates intestinal obstruction from enterolith:

Case I.—J. McC., age 47; male; admitted to Cook County Hospital Dec. 1, 1895. Family history negative. Personal history: Uses intoxicants and tobacco to excess; had gonorrhea three times; denies syphilis; typhoid fever when a boy; about twenty years ago was seized with sudden severe pain in the epigastrium; he describes the pain as a cramp, says it

lasted but a few hours; since that time has had many similar attacks; present illness began five days ago; after a large bowel movement, was seized with severe, steady, aching pain in the epigastrium which confined him to bed; the following evening patient began to vomit a dark-colored material; shortly after the material ejected became offensive; the severe pain, vomiting and inability to produce bowel movement has continued up to the present.

Physical examination: Well nourished; conjunctiva slightly jaundiced; tongue dry and heavily coated; breath very offensive; face has a pinched expression; knees drawn up; abdomen distended; irregular elevations can be noticed on its surface; liver dullness normal; the peristaltic movement could be recognized through the abdominal wall; auscultation revealed stormy peristaltic action, most marked in the epigastrium and on the right side; no tenderness except to the left and a little above the umbilicus, where deep pressure produced pain. Pulse 90; temperature normal.

Diagnosis: Mechanic ileus without intestinal strangulation. Celiotomy Dec. 6, 1895. Assisted by Drs. Besley and Wood. Median incision; small intestine very much distended; a portion secured and held by assistant; splenic flexure of colon located; found contracted and empty; advanced along the transverse colon until near the median line, when a nodule was felt in the small intestine. The transverse colon was then dropped and the nodule in the small intestine drawn into the wound. The intestine above the nodule was about two inches in diameter, below the nodule five-eighths of an inch. It could readily be seen that the obstruction was produced by a large foreign body in the bowel. A parallel incision was made and a large enterolith extracted. Opening closed with a Czerny-Lembert suture. Abdominal wound closed with silkworm gut; no drain.

The enterolith weighed 25 grams. It measured $4\frac{1}{2}$ cm. longest diameter by 2.75 cm. shortest. Its circumference was 12 cm. The center appeared to be made up of an old dry mass of plum pudding, to which other material had become adherent. It would be interesting to know whether this had been the cause of the attacks of pain which he had had for twenty years preceding the operation, and if it had been in the canal where it was lodged. We do know that the anastomosis button may remain in the bowel for months without producing manifestations of its presence. The differential diagnosis between strangulation ileus and obturation ileus in this case was based on the fact that the man had suffered for five days from obstruction and still was not collapsed nor severely depressed by it. The patient made an uninterrupted recovery.

We have in strangulated hernia the same symptoms as in internal strangulation, and in addition thereto we have a history of hernia, and the presence of an irreducible tumor. The peristalsis is increased and there is an absence of induration in the abdomen, except where peritonitis is present. When peritonitis is present there is a marked induration about the seat of obstruction and an absence of peristalsis in that region.

The following cases are illustrative:

Case 1.—Mr. C., aged 58. Referred to me by Dr. T. A. Lilly. Gave a history of hernia of twelve years' standing. Twenty-four hours before he came under my observation the hernia was down, and at that time he received a kick in the scrotum. It was followed by pain; the patient continued his work as usual, but at night was unable to return the hernia as had been his custom. He remained in bed the next day, and sent for the doctor in the afternoon. An irreducible strangulated hernia was detected and the case referred to me. Patient's pulse 100; temperature 100.3 degrees; abdomen tympanitic, induration extending over an area of five inches from the inguinal canal; absence of peristalsis over that region. No effort made at reduction and patient would not consent to operation at that time; but the following day he was taken to hospital. Herniotomy performed. On opening the hernial sac there were found two perforations of the coil of intestine, evidently the result of the traumatism. The coil was surrounded by pus; circulation not strangulated. Abdomen opened, and suppuration was found to extend about six inches from the inguinal opening. Intestines matted together, a large pocket of pus in the neighborhood of the inguinal canal, and three or four feet of the intestine covered with a pyo-fibrinous exudate. Peritoneum cleansed, pus carefully removed from surface of intestines, perforations sutured, coil returned; position of sutures kept at opening in the abdomen, the latter packed with gauze, glass drain inserted. Patient's condition was excellent for fifteen hours; his bowels moved; he then began to sink rapidly, and died twenty hours after operation. Post-mortem not permitted.

Case 2.—Referred to me by Drs. Jennings and Berry. History of strangulated hernia. Three days previous the hernia came down and could not be reduced. The pain was more severe than at any previous time. The patient had made protracted efforts at its reduction, but did not succeed. A doctor was consulted and the hernia apparently reduced, but the pain, vomiting, and inability to produce bowel movement continued.

Examination three days after onset of symptoms showed the abdomen uniformly distended; absence of abdominal respiratory movement; induration circumscribed by an arc of five inches from the inguinal ring; peristalsis over that area absent; present on the other side of the abdomen; temperature 101 degrees. Diagnosis, strangulated hernia; perforative peritonitis. Operation. Sac opened, and found to contain a small knuckle of intestine not strangulated, feces and pus. An opening half an inch in length was found in the coil of intestine, not from gangrene, but cut apparently by pressure against the ring in the patient's efforts at reduction. Enlarged opening in abdomen. Peritonitis circumscribed, half a pint of pus in the iliac fossa, twenty inches of intestine covered with a fibro-purulent exudate. Peritoneum cleansed, sac amputated, opening in bowel sutured (Czerny-Lembert), and retained near wound in the abdomen. Packed with iodoform gauze, glass and gauze drains. The following day the patient's condition

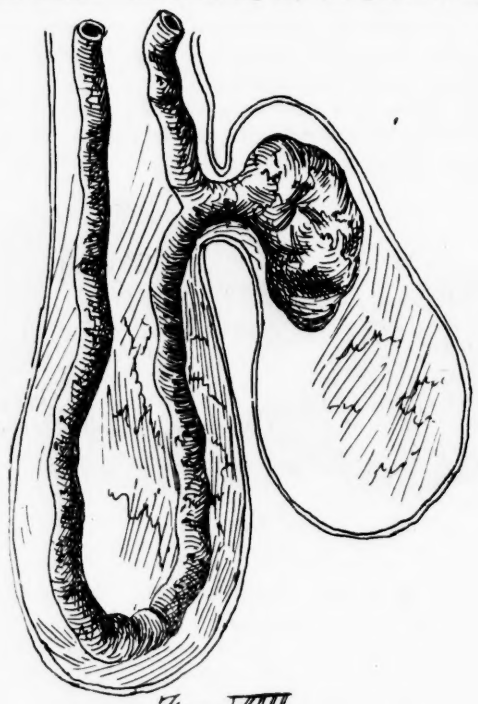

Fig. VIII

was fair and continued so until the third day, when singultus began. This persisted for four days, the patient vomiting once every six or eight hours. A bowel movement was produced on the second day and frequent passages kept up from that time. In ten days the gauze drain was removed, and the patient made a slow but perfect convalescence.

These two cases illustrate the characteristic signs of infective peritonitis following strangulated hernia; that is, beside the usual symptoms of obstruction there was *elevation of temperature*; *absence of peristalsis* near the position of obstruction, and *induration*. In neither of them was the coil of intestine gangrenous, and therefore not resected but sutured. It was fortunate for the patient in both cases that the hernia could not be completely reduced.

Strangulation of the omentum produces usually the same symptoms as an intestinal obstruction, and they continue for three or four days, depending upon the degree of strangulation. If it be sufficient to produce a necrosis they will continue until gangrene is complete. This may occur without producing a sup-

purative peritonitis, nor even an infection of the sac and absorption may take place. It is not uncommon, however, to have an incarcerated or strangulated omentum suppurate, and it should not be reduced. The same practice should govern its reduction, as the reduction of a strangulated intestinal hernia, that is, a hernia of more than thirty-six hours duration should never be reduced except by operation where the coil can be examined.

The following is an illustration of the importance of this principle in omental strangulation:

Mr. R., referred to me by Dr. W. W. Wetherla, and admitted to St. Joseph's Hospital. The patient stated that in alighting from his buggy forty-eight hours before, his hernia came down, as it had done repeatedly for fifteen years. He could not reduce it. The doctor was called thirty-six hours after the obstruction occurred and finding that the hernia could not be reduced, advised operation. Herniotomy was performed forty-eight hours after the onset of symptoms. The strangulated omentum was suppurating, and infiltrated with a fibro-purulent exudate: fresh adhesions to sac evidently prevented

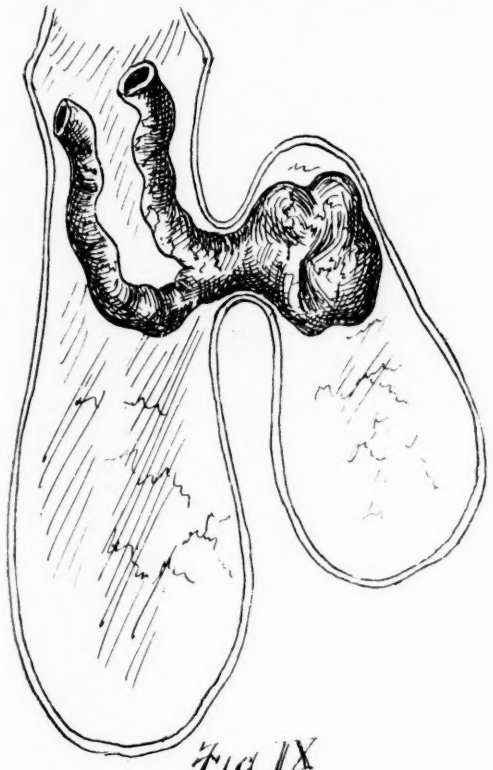

Fig IX

the reduction. Omentum amputated: stump returned, and Bassini operation resorted to for radical cure; sac removed, abdomen closed, complete primary union notwithstanding the presence in his perineum and scrotum of a number of old suppurating fistulæ. I believe that the source of the infection was through the lymphatics from the perineum and scrotum. In this case, as in the two preceding ones, the hernia could not be reduced.

Another danger following reduction of hernia is that it may be reduced *en bloc*, or a small knuckle may be allowed to remain in the ring. In these cases the symptoms of obstruction do not subside after the reduction, and it should be the rule that in all cases of reduced hernia, where the symptom of vomiting continues for six hours after reduction, a laparotomy should be performed.

Mrs. K. Referred to me by Dr. Blank. Patient had a strangulated umbilical hernia of two days' duration when thg doctor saw her. It was returned; the symptoms of vomitine continued, and the patient's abdomen became more and more distended. No bowel movement could be produced. The vomit had the peculiar odor of decomposed intestinal contents, not fecal. The patient's countenance denoted great depression. I saw her five days after the initial symptoms: at which time the extremities were cold, a cold perspiration over the entire body; lips cyanotic; eyes staring and glassy, and the patient in the most profound collapse. Examination of umbilicus showed the opening free, but on passing the finger into the ring an indurated nodule could be felt on the right side. No operation. Patient died two hours later. Post-mortem showed small knuckle of strangulated gangrenous bowel in one of the pockets of the sac, so commonly found in umbilical hernia.

As an illustration of incomplete reduction, the following is a most instructive case, referred to me by Dr. John W. Hanna of Winfield, Iowa.

Patient admitted to St. Joseph's Hospital, December 30, 1894. Six days previous, when he alighted from his buggy, the hernia came down. It was more painful than usual. It was reduced a short time after, but the pain continued, and he soon began to vomit. When seen by Dr. Hanna, five days after the hernia came down, the patient's abdomen was tympanitic, the vomiting had continued: the pain was slight, and in the five days the bowels had not moved. Examination revealed the inguinal canal apparently free. The patient presented the same symptoms when he came under my observation in the hospital, except that a small, hard nodule could be detected on the inner side of the right inguinal ring. The finger could pass freely into the canal without obstruction. This nodule was sensitive to pressure and very hard. The scrotum was full of fluid, as the patient said, from an old hydrocele.

Operation. Hernial sac opened, found empty, incision extended up into abdomen, and just below the inner pillar at the induration was found a knuckle of intestine passing from the seat of hernial sac through a very narrow opening into the hydrocele sac, as shown in Figs. 8 and 9. The abdomen contained a considerable quantity of serous fluid. Before the hydrocele sac was opened, the field was well packed with gauze and preparations made for a resection of the bowel. Hydrocele sac opened, contained a Littre hernia, involving four-fifths of the circumference of the bowel: it was gangrenous and perforated, and the hydrocele sac was full of very offensive pus and feces. Resection of five inches, end-to-end approximation with button, and mass returned into abdomen. Peritoneal cavity full of seropurulent fluid: incision left open and packed with gauze. Patient's condition when removed from the operating table very good. Within the next eight hours after operation he had six bowel movements, but his pulse began to increase. He had no pain, tenderness, tympanites nor vomiting. His expression became anxious and he died thirty hours after the operation from auto-intoxication.

We have in this case a striking illustration of the importance of operating where the symptoms of vomiting continue after the reduction of the hernia. Furthermore, we have an additional illustration of death from auto-intoxication from the absorption of the decomposed proteids that have been retained in the intestinal canal. In this case it could not be attributed to the thrombosed veins as they were resected.

TOWEL METHOD OF REPLACEMENT.

Surgeons of experience well know how difficult it is to replace the bowels after they have been out for a considerable time during an operation even when protected by hot applications. The causes of this difficulty are: 1. Usually before the operation the bowels are full of gas (tympanitic) from the diseased condition demanding the operation. 2. During the exposure the intestinal wall becomes edematous and a large transudation of fluid into the intestinal canal takes place. The bowel when eviscerated is light and its wall thin and pliable, in half an hour it becomes heavy and sodden, resembling sausage. These changes make it difficult to replace the intestine into the abdominal cavity. Some operators resort to puncture of the bowel to relieve the distention and thus facilitate the replacement. In a number of cases I have used the following method of returning

the bowel. Cover the entire intestinal mass with a hot towel, placing the edge of the towel inside the margin of the wound all the way around. This acts as an artficial abdominal wall and resembles an enormous ventral hernia with a large neck or opening. The operator and assistant then press or work the edge of the towel under the wall on all sides, with the fingers, at the same time elevating the abdominal wall with retractors, and thus force the mass down to a level with the abdomen. The reduction is effected in this manner as easily as a hernia is reduced after the ring has been enlarged. The sutures are then inserted and as they are tied the towel is gradually withdrawn.

I desire to thank Dr. F. S. Hartman for his assistance in the preparation of this article.

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TRAUMATIC STRICTURE OF THE VAGINA.

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A bride of three days consulted me on account of unendurable pain at the first attempt at sexual intercourse. She was a young woman of apparently perfect health. She said she had never been sick in her life and that she had worked constantly as a nurse for several years after taking training in a small hospital. In her girlhood she had fallen on a picket fence and injured the vagina and bladder, but she believed she had entirely recovered from that injury. At each menstrual period she bloated some but had no pain. There was always a rather long flow, sometimes lasting six or eight days. Clots were never seen. There had always been some leucorrhea. On making an examination the vagina was found closed just beyond the remnants of the hymen. A large tumor could be felt through the rectum about an inch and a half behind this stricture, and still further back the tumor verged into the uterus. The tumor was evidently cystic. Pressure upon it did not cause any discharge of its contents into the vagina, and was not painful. The case was pronounced one of stricture of the vagina with dilatation of posterior portion by discharges from the uterus.

She was operated on in my hospital the following day and the diagnosis confirmed. The probe was passed into a small opening in scar tissue at the bottom of the vagina, for half an inch, and then with the finger in the rectum and the sound in the bladder the vaginal wall divided. This move was repeated several times until at last the sound came into the cyst and about six ounces of pus-like fluid was discharged. The cavity was washed out. The ragged anterior portion of the vagina was then trimmed into a regular line. The posterior vaginal mucous membrane was loosened up from the bladder and rectum so that it could be brought forward and attached to the anterior portion. The line of suture was slightly elliptical extending farther back dorsally than ventrally. By the end of two weeks the union was complete and the vagina would admit the glass plug that measured an inch and a half in diameter. The dilated cervex of the uterus had contracted to about the normal size. Two months later the patient reported herself perfectly well.

This was an unusually easy case to treat. The distention of the posterior vagina gave loose tissue enough to bring forward and repair the vaginal defect. This defect seemed to be one and a half or two inches long.

BUST OF THE LATE PROFESSOR WILLIAM H. BYFORD.

PROFESSOR DELASKIE MILLER, in accepting the bust of Dr. Byford to be placed in Rush Medical College, paid the following tribute to the memory of his late colleague:

GENTLEMEN OF THE BOARD OF TRUSTEES AND OF THE FACULTY:

Ladies and Gentlemen: Obedient to the impulses of my own heart, I feel that I must do more than pronounce these formal words of acceptance and thanks for this valued memorial of Professor Byford. Moreover, the presence of so many who knew the original and appreciated his worth as a man, and his skill as a physician, constrains me to indulge my inclination.

As the years recede, men who are engrossed in the duties which are imposed upon them by the exactions of life's struggles, are hardly conscious of the changes that are constantly taking place around them, or if an event should arrest the attention, the impression is quite certain to be only of short duration. Still it remains true that the column of figures behind them which shadow forth the lapse of years is rapidly attaining altitude. It is well that this register of passing events is thus placed, for thus it may elude the vision for a time; were it otherwise, men would hardly go forward with the same intense interest in their vocations, or continue to exercise the same vigorous striving for high acquisitions, or to feel so constantly the stimulus of the same bright hopes.

Notwithstanding this pre-occupation, the lesson of experience which we and all should learn to heed, is, that one by one our comrades are dropping from the ranks, and when one whose characteristics are partially expressed by words like these—gentleness, goodness, uprightness—probity and preëminent ability has departed, it is most fitting that we should step aside from the onward rush of the tide of events and give expression to our appreciation of his character.

To be effective every delineation requires that attention be given to the environment. A landscape of forest, glen or rivulet without a suitable background, would be faulty. We must see the sky, the clouds, the distant mountain tops, the haze of the atmosphere, the decomposed sunlight giving the variegated coloration of morning or evening views, as well as the forest, the glen or the rivulet.

In presenting my subject to-day, it will therefore be to the purpose to sketch the environment of Dr. Byford's early life.

William Heath Byford was born March 20, 1817, in the hamlet of Eaton, Preble County, Ohio. Thus the year 1817 gives us the point of departure in this study. What was Ohio in 1817? The western tier of counties was a wilderness, broken only by occasional settlements. This was the frontier of civilization. Indiana had been a State but one year. Illinois, Michigan and Wisconsin were parts of the great Northwest Territory. Plato said: "That to know what a thing is, we must know what it is not," accepting the teaching of that wise man, I must use negatives mainly in expressing my present thought. In most places of that region the forests were so dense that the sun's rays could not penetrate to the earth. The roads were not improved, the stumps and other rubbish had not been removed in the isolated clearings. There were no railroads, no telegraph lines, there were no electric or gas lights, verily,

western Ohio was distinguished for the absence of all improvements which we think are essential for a comfortable existence. What a background does this present to us, on which to limn the outline of the evolution of a human life!

Some have emphasized the fact that the father of William was not wealthy. In this respect, I imagine, that his case was not peculiar. In the small communities of that time widely separated as they were in districts, wild as nature, he was rich who possessed health, habits of industry, integrity and the indomitable courage to look unappalled into the future. That I have not overdrawn the picture, may be inferred by the fact that while William was still in his infancy, the father was dissatisfied with the location, and in hope of improving his circumstances, he moved to another section of the country, also new, viz., the Falls of Ohio, now called New Albany. And again, in 1821, he removed to Martin County, Indiana. Here William began his career as a scholar. Here he had the advantages to be obtained in the public country school (whatever they might have been).

It was here that the father, Henry T. Byford, died, when William was nine years old. This bereavement compelled William to leave school, and at this tender age devote his time and strength to the aid of the widowed mother.

In acquiring his education, I am not aware that William ever had the advantages of a university, a literary college, an academy, a high school or even the district school, after he was nine years old.

It does seem that these were hard lines for the boy who was to become, though he knew it not, a most eminent physician and a leader of the profession in a metropolitan city. Some who have had the advantages which Harvard or Yale could offer, have in their life's work accomplished less than did this orphan boy.

At the age of thirteen he was apprenticed to a trade. At this trade he worked faithfully for six years, but he devoted the spare hours to study. Of his success as a student, under these circumstances, you shall judge. In four years he had acquired a thorough knowledge of the English language; he knew Latin, Greek and French. He had studied natural history, physiology and chemistry. At this period he determined to become a physician, and he applied his energy to study with such success that in 1838 he presented himself to the Board of Commissioners authorized by the statute to grant licenses to practice. He passed a satisfactory examination and received a certificate testifying that he was qualified to practice medicine and surgery.

He began the practice of medicine in Owensville, Ind,. Aug. 8, 1838. In 1840 he moved to Mt. Vernon, Ind. He attended medical lectures in the Ohio Medical College, and received the degree of Doctor in Medicine in 1845.

In 1847 he performed the Cæsarean section, the most daring operation known to surgery, the history of which he wrote and published.

From this time forth he wrote numerous and valuable papers on a variety of medical subjects for the medical journals, which attracted the attention of the profession throughout the country. One paper, as I remember, was of unusual interest, and elicited a great deal of earnest discussion by the profession. It was on "Milk Sickness," a peculiar disease. The mortality was so great from this disease that it was called by the historian of that time "a frightful pestilence." Its etiology was probably no better understood at that time than it is by the most learned physicians of the present day. I write from memory and am unable to give Dr. Byford's views of this disease, nor can I indicate the publication in which they were printed.

In 1850 he was appointed Professor of Anatomy in Evansville Medical College. Two years later he was transferred to the chair of Theory and Practice of Medicine in the same institution. During his connection with that college he was one of the editors of the *Evansville Medical Journal.*

He was elected Vice-President of the AMERICAN MEDICAL ASSOCIATION in May, 1857, and in the same year he was chosen to fill the chair of Obstetrics and Diseases of Women and Children in Rush Medical College.

For two years he was associate editor of the *Chicago Medical Journal.* After two years he retired from Rush Medical College, and united with other gentlemen in organizing and establishing the Chicago Medical College. In that institution he filled the chair of Obstetrics and Diseases of Women and Children.

He was a member of the American Gynecological Society, and in 1881 was elected its President.

Dr. Byford was active in the organization of the Woman's Medical College of Chicago, of which he was President, and to his personal influence and his valuable work as one of its professors, that institution was indebted for its well-known prosperity and acknowledged usefulness.

He was an active and zealous member of the Chicago Medical Society, and by the frequent contribution of papers on important subjects, and by his participation in the discussions in its meetings, he did much in raising the society to great usefulness.

Dr. Byford was requested to reorganize the Woman's Hospital of Chicago, at a time when its existence was threatened. He soon collected the forces and systematized the work in a manner that insured its permanence and capacity for greater usefulness. By his indefatigable exertions a new, substantial and capacious hospital building was erected. The benefits to the sick and suffering dispensed by the Woman's Hospital, under his efficient management, are beyond calculation.

It is no wonder that the friends of this hospital were greatly exercised and anxious regarding the future of its usefulness when Prof. W. H. Byford was stricken down. Even the Board of Lady Managers seemed not to realize for the time being that there was still connected with the medical staff another Byford. It is not out of place for me to say here that the Woman's Hospital maintains its high grade of usefulness.

Dr. Byford was the prime mover in the organization of the Chicago Gynecological Society, and he was its first President. The amount and quality of work done in this society will compare favorably with that of the best societies known. It still continues to produce abundant works of the highest scientific and practical value.

He was a life member of the British Gynecological Society.

I have alluded to the fertility of Dr. Byford's pen, but it was not limited to the production of contributions to the medical journals. In 1864 he published his work on "Chronic Inflammation and Displace-

ments of the Unimpregnated Uterus." In passing, I note that this was the first systematic medical work published by a Chicago author. At this time the author had acquired considerable reputation in the treatment of the diseases of women. To prove that he was a pioneer in this department of practice, it needs only to be stated that, owing to the novelty of procedure, there were eminent men in the profession not a few who endeavored to discourage the use of means which were necessary in making a diagnosis. Notably, of these, was the Professor of Obstetrics in the Medical School of St. George's Hospital, who insisted that this practice was of questionable propriety, and he did not hesitate to use, in condemnation of the practice, even more ungracious terms.

In 1866 Dr. Byford published his "Practice of Medicine and Surgery Applied to the Diseases and Accidents Incident to Women." This work has passed through successive editions, and is recognized as a standard text-book in the medical colleges.

In 1872 his work on Obstetrics was published. With justifiable pleasure the doctor related to his intimate friend an incident of his first visit to Europe. He called to pay his respects to the venerable Dr. McClintock, of Dublin. During the interview, Dr. McClintock went to his bookcase, saying to Dr. Byford, I wish to show you a work which I consider one of the best on the subject in my library, and then handed him Byford's Obstetrics.

By invitation, in 1879, Dr. Byford attended the annual meeting of the British Medical Association, and read an important paper on the use of ergot in the treatment of fibromyomata of the uterus.

Dr. Byford returned to Rush Medical College in March, 1879, and was elected to the chair of Gynecology, which he filled continuously till his demise, May 21, 1890.

As an operator he was deliberate and painstaking. No minutia of detail was too trivial to escape his attention, for he held that every item of detail was important, and to his care in these particulars must be attributed largely the secret of his success.

As a teacher he was accurate in every statement of scientific truth as he understood it. He was systematic in his arrangement of the subjects, and logical in his deductions. His vocabulary was ample and his words were well chosen. He never attempted unnecessary embellishment of style. He avoided everything in his lectures, either of word or act, which would tend in the least to divert the attention of the class from the elucidation of the subject under discussion. These were the qualities that made him the popular teacher that he was.

In his professional intercourse he was condsiderate and just. In his deportment no prospect of immediate advantage ever influenced him to swerve in the slightest degree from the line of rectitude. To such a man the printed code of medical ethics was useless. In the dignity of his manliness he rose above the technical limitations which that code would prescribe. To the young physicians he was generous to a degree that secured their confidence and captivated their affections.

Here I can not resist the temptation to introduce the estimate in which Professor Byford was held by an eminent member of the profession long years since.

In 1859, after Dr. Byford had withdrawn from his position in Rush Medical College and united with other gentlemen for the purpose of organizing and establishing a new medical college in this city, in answer to a direct question, Dr. Daniel Brainard said to me: "Dr. Byford is a physician of uncommon ability."

These are expressive words, when we remember the time—when we consider the circumstances we are conscious that comment could add nothing to their force.

Now having reached this stage of my sketch, we find that Dr. Byford attained eminence and great reputation. He seems to stand alone, like a general in front of the long column of an army (if I may use the simile). Do you query: Who were Professor Byford's teachers? I answer, he had no teachers.

True, he took his degree from a legally organized medical college. But what were the opportunities for obtaining a superior medical education at that time in a western school? There were no clinics worthy the name. Of the didactic lectures, which were the principal, almost the only means of communicating knowledge in all the medical schools, I have only this to say: There are doctors present who are old enough to recall the appearance of the paper as the pages of the manuscript were turned, already venerable with age, having passed into the sear and yellow tint, from which the professors droned out their instructions. No, Dr. Byford had no teachers! He took his degree and at once stepped upon a plane, above and unknown to his confreres.

Were the story of Dr. Byford's life, which I have only briefly sketched, duly extended, we would be obliged so search far to find many analogous to his; in the obstacles which he overcame; in his usefulness in society and in the eminence which he achieved. I know of but one in any profession whose life presents a parallel, and of that life I need not rehearse the particulars. You all know it well, of course I refer to Abraham Lincoln, also, of Illinois.

The home life of Dr. Byford needs no words of praise. The most sacred word to the true man is, Home. This word includes all the real pleasures and joys of life. One who saw, and knew that home and the daily life in it, can affirm that the delicate graces and refinements of true affection resided there. It was a type of the house of "many mansions." In a sense there could be but a thin veil between that home and the "house not made with hands."

Dr. Byford had an abiding faith in the doctrines of the Christian religion. With a congenial friend he never wearied of conversation on the influence which these doctrines exerted in the formation of character; in elevating thought; in stimulating aspirations for the highest good; believing, as he did that the surest way to secure the greatest amount of pleasure in life was by practicing all the virtues implied in the "golden rule." He enjoyed the solemn worship with the congregation, but public worship was not a necessity to him; the graces of his belief shone brightly in the acts of his daily life. With a full consciousness of the solemn import of the words and with a reverent awe, I would class Dr. Byford with those who in the sermon on the mount are promised the blessing; for they "are pure in heart."

Dr. Byford possessed the spirit of genuine devotion. He could offer acceptable worship when alone in the grand cathedral of nature. Standing under the arch of the blue canopy in

"The broad blessed light, in the perfect air,
By the rippling tide, the tree, the meadow, the flower,
Listening to the symphonies of the living breeze,
And in the midst, in the hour of faith,
He could see God's beautiful and eternal right hand."

During the latter years of Dr. Byford's life, he was a great sufferer from sudden attacks of severe pain in the region of the heart, attended with difficult breathing. These attacks became gradually more frequent and more painful, ordinary exercise was liable to excite an attack, so much so, that about a week before his death he announced his determination to decline all cases which would require operative procedure.

The diagnosis of his case was "ossification of the coronary arteries."

In the evening of May 20 he took a bath, as was his custom, and retired; about midnight he was seized with an attack of unusual severity.

"These were the parting pangs which nature feels
When anguish rends the heart strings."

The nearest physician was called hastily, he administered an anodyne, and the son, Dr. Henry T. Byford, was summoned by telephone. The doctor responded promptly, but when he reached the bedside his father was unconscious, and he remained in that state till he breathed his last at 2 o'clock A. M., May 21, 1890.

The funeral was largely attended by the physicians of the city, and by other mourning friends.

It is a coincidence that these services have been held on the anniversary of Dr. Byford's death.

NEW INSTRUMENTS.

A DOUBLE STOMACH TUBE.

BY F. B. TURCK, M.D.
CHICAGO.

This new apparatus is similar to the needle-douche and the gastric motor meter. It consists of a thin rubber bag connected with a double tube, and has been devised by me for the purpose of diagnosis and treatment. As stated before, this is simply an addition to the double tube, known as the needle-douche, which I first used two years ago, and which was first shown at the International Medical Congress at Rome in 1894, and later at the meeting of the AMERICAN MEDICAL ASSOCIATION at Baltimore, May 7, 1895. Further reports on its uses and advantages were published in the *Therapeutic Gazette*, May 22, 1895, in an article on "Chronic Glandular Gastritis." Again, reference has been made to the use of the double tube in an article "Methods of Diagnosis and Therapeutics in Diseases of the Stomach," published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 22, 1895. Previous to this, May 21, 1895, I demonstrated it before the New York Academy of Medicine. The lecture was published in the *American Medical and Surgical Bulletin*, July 1, 1895.

The use of the double tube is not of recent date. It is an old method which has been common property for some years. Therefore no originality can be claimed for the simple use of the double or recurrent tube. The distinctive features which I was the first to bring out, as far as I know, are:

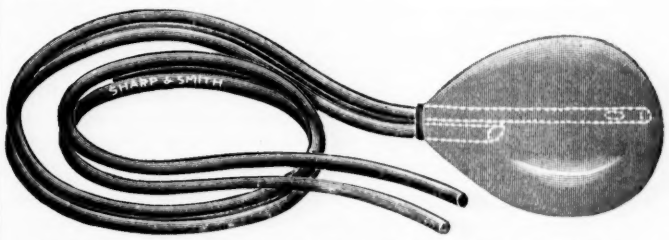
Two single tubes of different caliber attached to one another side by side. The one of smaller caliber reaches to the cardia only, the larger extends to the great curvature. The short smaller tube, which reaches to the cardia only, was made smaller so as to, in some degree, equalize the relation between the inflow and outflow of the water, and also for direct treatment of the stomach wall.

When a small perforated ball is attached to the shorter smaller tube, it is used as a needle-douch for forced irrigation. Furthermore, it was found of great value (as previously reported) in using hot and cold water alternately. A fine spray needle-douche projected against the wall of the stomach acts as a vasomotor and a muscular stimulant, similar to a rain- or fan-douche used on the surface of the body. This belongs to the hydro-therapeutics of the stomach.

By leaving off the small ball the same tube has been used with the nebulizer which I introduced for the treatment of the stomach walls with oil of cloves and other medicaments.

I have found this arrangement of the double tube (small caliber reaching to the cardia, large caliber extending to the great curvature) very valuable for a number of purposes. Others have evidently recognized it, and have adopted my modification of the old double or recurrent tube. (Vide Hemmeter, *New York Medical Journal*, Dec. 28, 1895.)

This new apparatus may also be used as a gastric motor meter, an instrument which I first demonstrated before the AMERICAN MEDICAL ASSOCIATION at Baltimore, May 7, 1895. Previously it was shown in a special course of lectures in the Post-Graduate Medical School, Chicago, September, 1894. Also at the meeting of the County Medical Association, Philadelphia, May, 1895.



In this new apparatus the smaller tube leads to the upper part (the opening) of the thin rubber bag, the larger tube reaches to the bottom of the bag, similar to the tubes and bag of my gastric motor meter and needle-douche. When the bag is collapsed it fits very closely to the tubing and does not considerably enlarge it, so that it readily passes into the stomach.

USES OF THE APPARATUS.

For purposes of diagnosis. Water is introduced into the bag through the smaller tube from an elevated graduated reservoir. The current is rapidly carried into the bag, the other tube acting as a vent. The elasticity and distensibility of the stomach can be determined by the degree of distention produced which may readily be seen on the graduated elevated reservoir.

The stomach may be mapped out: 1. By percussion. 2. By inspection with the electric light. By introducing the electric light into the bag when it is filled with cold water, a very much higher candle power can be used than ordinarily. Thus the illuminating power is increased without danger of overheating, since the constant flow of cold water prevents this. The partly spherical body of water contained in the bag, the bulk of water acting as a refracting medium, greatly increases the power of the light. 3. By palpation. By using the gyromele the stomach can be mapped out most accurately by palpation.

This will give the most positive evidence of the exact location. By using the gyromele when the bag is empty it can be placed into any part of the stomach desired, the pyloric extremity or cardia. This is done by introducing the cable through one of the tubes and passing it along to the desired part. The pylorus can be dragged down and palpated in many cases, by introducing large quantities of water. This one fact alone makes it a valuable aid in early diagnosis of carcinoma of the pylorus. When air is introduced with the water the degree of increased or decreased motility of the stomach can be determined. One of the tubes is closed and the other is connected with a manometer. I have previously reported on the uses of the gastric motor meter, by the use of air, or water, or both. It has been found that a small quantity of water, 100 to 200 c.c. stimulates contractions, especially in a healthy stomach. When over-distension occurs, as by the use of a liter of water, or more, it rather interferes with the motility, on account of the greatly increased bulk and weight.

Treatment.—The use of this apparatus for treatment is chiefly in cases of congestion of the gastric and mesenteric vessels. By introducing a constant stream of hot water—105° F., sometimes even 110° F.—an even constant temperature is kept up. It is especially beneficial in cases of chronic gastritis attended with gastralgia, due to congestion. It may also be used in cases of prolonged operation upon the viscera, to prevent shock. Its value in cases of shock is due to the fact that not only the gastric and portal vessels are affected by the hot water, but also the superior mesenteric, which lie beneath it. The important use of this method is that a constant and even temperature can be controlled by the continuous flow, and that hot and cold water can be used alternately. In cases of sluggish circulation of the stomach, or deficiency in musculature and secretion, the stimulating effect of alternating hot and cold water can here be readily utilized.

The advantages are:

1. The hot or cold water treatment can be continuous. The water does not come in contact with the mucous membrane, therefore secretions and particles of food-stuff necessary for nutrition are not removed. 2. The water can be aspirated readily without endangering the mucous wall. 3. The amount of water retained in the stomach can be regulated at will. 4. By using a large oval-shaped bag, distended, great force can be used in projecting a stream against the wall with the spray or needle-douche, stimulating the gastric vessels and musculature. The needle-douche can be used for a considerable time under great pressure. As fast as the water is projected it can be aspirated. There is no obstruction to the rapid withdrawal of the water.

No. 1, The Plaza.

SOCIETY PROCEEDINGS.

Association of American Anatomists.

Meeting held in Philadelphia, Dec. 27 and 28, 1895.

THE DUTY OF THE MEDICAL PROFESSION TO CIVILIZATION AND TO SCIENCE.

DR. THOMAS DWIGHT, of Boston, Mass., in his opening address as President spoke of the horror which the general public have for human dissection, and the aversion of the popular mind to this very necessary part of medical research. This prejudice he believed was founded, first, in the popular belief that sepulchers were violated: and second, that the remains were subjected to wanton insult.

It is idle to hope that while human nature remains as it is this aversion to dissection will ever disappear. Our wisest course is to recognize it and to soften it by removing all just cause of complaint. It should be made clear to the public that dissection can and should be followed by decent burial. I, myself, would go so far as to have the bodies of Protestants and Catholics buried in their respective cemeteries when the creed of the deceased is known. It should also be understood that no wanton insult is permitted in reputable schools. The policy which will lead to the most satisfactory results is one of complete openness. Above all, we should avoid a timidity which shirks discussion of this topic. When we shall show so clearly as to carry conviction, that we have nothing to conceal, a great step will have been taken. A radical defect in the laws of many States otherwise well drawn, is that the delivery to medical schools of unclaimed bodies is optional with superintendents, boards of trustees and municipal authorities. The result of this is that those in authority very naturally hesitate to do anything for the advancement of science which not only can be of no possible advantage to themselves, but may involve them in serious difficulties.

German anatomists have recently adopted a report prepared in company with the representatives of other European countries, prepared with the idea of establishing a more satisfactory, and at the same time more scientific nomenclature than is at present in use. It is for us to decide whether their report is satisfactory, and if so, whether we shall join hands with our foreign colleagues, or if such is not the case, whether we can devise an American nomenclature which shall be so much better as to be distinctly superior to that at present in use.

ANATOMIC MATERIAL AND ITS PRESERVATION.

A committee of three appointed by the Association of American Anatomists to investigate this subject made their report at the meeting held Dec. 27, 1895, as follows: In response to a circular which was sent to a number of teachers of anatomy, not only in this country but abroad, in which a series of questions were asked, full answers were secured from the majority. This letter was sent to the professors of anatomy in 148 colleges in the United States, twenty-five in foreign countries, and twenty-five copies were sent to the medical journals in this country and Europe.

1. Anatomic material is received wholly under the provisions of the law in thirty States and countries, in part by law in seven and without law in five.

2. The provisions of the law were satisfactorily complied with in ten, fairly so in ten, not satisfactorily in twelve, and no replies were given in ten. In eight the provisions of the law were stated to be obligatory and in six the provisions were optional.

3. As to the condition in which the anatomic material was received, in twenty instances it was good, in twenty-one fair, and in one bad.

4. As to the disposition of the remains, in twenty-seven institutions they were reported buried, in ten cremated, and in four thrown away.

5. The agents employed in the preservation of subjects were various, and employed in a variety of combinations. Carbolic acid stood first, and was found to be especially useful in combination with other agents. Glycerin was the ingredient of next importance. It was also employed in combination. Arsenic was the next most popular, especially in combination with other substances. Chloral hydrate, the chlorid of zinc and the bichlorid of mercury came next in the list. Alcohol either pure or in combination, carbonate of potassium, the bicarbonate of sodium, chlorid of sodium, methyl spirit, formalin, nitrate of potassium, brown sugar, and boric acid were reported as successfully used.

The preservation of subjects by cold storage was reported in five instances. Some of the agents above noted were used in combination to preserve the subject which had been kept in cold storage, after it had been placed upon the table for dissection. It was found that the subject would keep indefinitely. A solution of the chlorid of zinc of neutral reaction, 50 per cent. in strength, was found to successfully preserve subjects, but it has the objection of hardening tissues and causing a change of color. If subjects have been immersed for a long time in a solution of common salt it has been found advantageous to soak them in water for twenty-four or forty-eight hours in order to soften the tissue. A number of useful formulæ for the preservation of subjects were forwarded to the committee, such as Wickersheim's, containing alum nine parts, chlorid of sodium twenty-five, nitrate of potassium twelve, carbonate of potassium sixty, arsenious acid ten; when cool filter and to

ten parts of the liquid thus obtained add one part of methyl alcohol and four parts of glycerin. Van Vetter's formula, seven parts of glycerin, one part of brown sugar and one-half part of nitrate of potassium. Langer's formula, 100 parts of glycerin, fifteen parts carbolic acid and eleven parts of alcohol: and Empersonne's formula, chloral hydrate 500 grs., glycerin $2\frac{1}{2}$ liters, and distilled water.

6. Injections were made in two institutions in the heart, in nineteen in the common carotid artery, and in six in the common femoral artery.

7. The cost of receiving and preserving material was stated to have been from one to twenty-five dollars per subject.

8. In fifteen cases the supply of material was stated to be sufficient and in fifteen insufficient. The number of students who were assigned to each subject varied from four to sixteen.

The committee, consisting of Drs. J. Ewing Mears of Philadelphia, J. D. Bryant of New York and Thomas Dwight of Boston, Mass., heartily recommend that, 1, a combined effort should be made by the medical profession to secure the enactment of laws which will provide for the proper supply of anatomic material to medical colleges; 2, that an effort should be made to place before the public the great necessity which exists for the proper use of dead bodies in providing instruction for students of medicine, and the ample protection afforded the citizens of every State by the enactment of laws which will regulate the supply of anatomic material. The committee believe that the cold storage method of preservation in combination with the injection of chemic agents especially adapted for that purpose, affords the best method at present known. The great objection to formalin and alcohol is that they are both too expensive.

CONCLUSIONS.

1. Anatomic material for the promotion of medical science should be obtained wholly under legal enactment. The provisions of the law should be compulsory upon all officers of the State and county institutions and municipal governments.

2. Of the anatomic laws which are in force in this country the committee are of the opinion that the law of the State of Pennsylvania is the best.

3. The committee believe that it would contribute to the best interests of anatomic teaching in this country if action were taken by this Association to secure the enactment in every State of a law controlling the collection and distribution of anatomic material, and it heartily recommends such action.

4. While many of the agents reported in the communications which have been received have been long in use and have been to a greater or less extent employed successfully, the committee feel that no definite conclusions can as yet be drawn in regard to that perfect method as well as the securing of the best results in dissection, which it is hoped to secure. The preservation by means of cold storage approaches nearest to the perfect method, and it should be arranged upon a plan which will admit of the retention of subjects for a long time under the influence of a low temperature during dissection.

Dr. B. G. Wilder, in discussing the report of this committee, said that after an experience of twenty-seven years, we are wedded to the use of alcohol. Brain tissue, we find, is best preserved by a combination of formalin, bichlorid and salt. For muscles and viscera, alcohol is the best preservative. There are are two objections to its use, first, the cost, and second, the property it has of bleaching the tissues.

Dr. G. B. Huntington fully agreed with Dr. Wilder in regard to alcohol. He recommended also the cold storage plan, which after an experience of three years has been found to give good results. Any injections should be made before freezing. Immersion in cold water is the best method of removing the ice from the body, and hastens the uniform melting of the parts. Arsenite of soda was used chiefly for washing the blood out of the body. Injections were made into the carotid artery, and the blood was allowed to flow until the water which made its escape was no longer tinted with blood.

Dr. Bevan said that he had had excellent results with the combination of cold storage and a preliminary injection of alcohol, glycerin and bichlorid. In handling bodies while in cold storage, he made use of a pair of tongs, which can be made by any blacksmith for about one dollar in such a way as to fit into the external auditory meatus of each side. He has found a solution of formalin and Müller's fluid to be useful in the preservation of brain tissues: the substance so prepared hardens rapidly, and may be used for class demonstration to within three days; the color is well preserved, and it is possible to distinguish the gray and white matter at a distance of fifty feet. He uses a 5 per cent. solution of formalin in Müller's fluid, enough of the solution being employed to immerse the specimen.

A CONTRIBUTION TO THE MYOLOGY OF LEMUR BRUNEUS.

Dr. George S. Huntington, of New York City, read an interesting communication on this subject. He confined his attention to the muscles of the trunk, pectoral girdle, and upper extremity. His results differ in many respects from the descriptions published by Murie and Mivart in their memoir of the anatomy of the lemuroidea and others. The paper dealt especially with the following points which have hertofore been undescribed.

1. The presence of an axillary arch from latissimus dorsi to the pectoral insertion replacing the cutaneous muscular slips described by Murie and Mivart.

2. The peculiarities of the humeral attachment of the pectorals which may be arranged as follows: *a*, the connection as already stated with a slip from the latiss. dorsi reproducing the condition found in a distinct variety of the humeral axillary arch. *b*, the connection of the abdominal division of the pectoralis major with the pectoralis minor at its insertion into lateral humeral ridge. *c*, folding of insertion tendon of the sternal division of superficial pectoral. *d*, insertion of clavicular portion into superficial aspect of sternal tendon and its fusion with the deltoid. All the conditions referred to can be properly regarded as presenting strong simian and anthropoid affinities.

3. The coraco-brachialis presented a division into an upper, middle, and lower parts, the latter was inserted into the root of supracondylar arch. The musculo-cutaneous nerve perforated the middle division.

4. The presence of a large and distinct epitrochleo-anconeus from the supracondylar process to the internal condyle and the ulnar margin of the olecranon.

5. The union of the brachialis anticus and the lateral head of the triceps, both extending to the head of the humerus and arising from the outer aspect of the bone.

6. Among the trunk muscles the arrangement of the supracostalis was especially to be noted, extending from the cartilage of the first rib to the third, fourth and fifth cartilages at their juncture with the sternum.

The entire group of deep thoracic muscles presented a typical carnivore aspect. The supracostalis, thoracic extension of the rectus abdominis to the first rib, a continuation of the serratus anticus with the levator scapulæ, the thoracic extension of the scalene group and its relation to the external oblique all conform almost absolutely with the type presented by a plantigrade carnivore as Taxidea Americana. On the other hand the pectoral girdle and brachial muscles conform to the simian type. Thus far lemur bruneus is especially marked in the arrangement of the pectoral group.

In the abdominal muscle groups the arrangement of the external oblique aponeurosis clearly foreshadows the structure found in the higher primals, especially in relation to the construction of the external abdominal ring, Gimbernat's ligament and the triangular ligament of human anatomy.

HISTORY OF THE CILIARY MUSCLE.

Dr. Frank Baker of Washington, D. C., after a careful review of the literature of this subject has found that the two portions of this muscle, the fibers of one part of which are directed meridianally along the eyeball and the other with fibers arranged equatorially have been named after observers who were not strictly the first to describe them. Thus the portion, which has been called Müller's annular muscle, has received its name from the description which Heinrich Müller of Würtzburg gave of it in 1857. Portions which have their fibers arranged meridianally were often called Brücke's or Bowman's muscle, under the impression that the discovery or first description of it belonged to one or both of these anatomists. Bowman described the ciliary muscle in his lectures on parts concerned in operations on the eye published in 1849, and Brücke called this muscle the tensor choroideæ in a paper read before the Berliner Physikalischen Gesellschaft, in May 1846. Of the two descriptions that of Bowman's is the best. Bowman made several other publications on this subject. In 1844 he published a series of lectures in the Boston *Medical and Surgical Journal;* he speaks of the ciliary muscle as being composed of muscular fibers lying within the ciliary body. He supposed the striations of the orbicularis ciliaris to be tendinous. Before either of these observers wrote, however, the ciliary muscle was described and named by an American, Dr. William Clay Wallace, who published an article in *Silliman's Journal* in 1835. Dr. Wallace also published several other articles on this subject. In his treatise on the eye, New York, 1839, he mentions the ciliary body as containing muscular fibers. Also in 1844 in a series of lectures published in the Boston *Medical and Surgical Journal*, he speaks of the ciliary muscle as being composed of muscular fibers lying

within the ciliary body. He supposed the striations of the orbiculus ciliaris to be tendinous. Dr. Wallace also goes in the subject at considerable length in his lectures on myopia, Boston *Medical and Surgical Journal*, 1844, xxx, 288. See also the same author in the London *Medical Gazette*, 1842-43, 1, 412.

Among the earlier authors, there are also several who appear to have recognized the muscular nature of the so-called ciliary ligament. Even Eustachius, who lived from 1510 to 1574, had some divination of the muscular character of these fibers although he was unable to demonstrate them by the means in his power. Fallopius corrects him and calls it a ligament. Plempius (Vopiscus Fortunatus), Ophthalmographia, Amsterdam, 1632, p. 169, also describes this structure. Wm. Briggs, Ophthalmographia, 1686, speaks of it as possessing muscular fibers that change the form of the lens. G. Bidloo, "Anatomia humani corporis," Amsterd. 1685, and Descartes "L'Homme de Rene," 1664, describes this structure at some length and present a number of drawings illustrating the part.

It is interesting in this way to recall that the real nature of this part of the anatomy of the eye was not altogether unsuspected by the early anatomists, and that all the credit for an early description of this ciliary muscle is not entirely due to the men whose names the several parts bear.

ABSENCE OF THE FIBROUS PERICARDIUM, OF THE LEFT SIDE.

DR. ADDINELL HEWSON, of Philadelphia, presented an interesting specimen of this condition before the meeting. He had found it in the dissecting room of the Jefferson College. The specimen was removed from an Englishman by birth, aged 54 years, who had been an inmate of an insane asylum for four years previous to his death. By occupation he had been a scrivener. There was distinct abscence of the fibrous pericardium on the left side and an adherence between the apex of the left ventricle and the lower anterior margin of the left lobe of the lung. The specimen showed in front the pleura enclosing the internal mammary artery and the left phrenic nerve displaced anteriorly from its normal position. An incision had been made in the median line to expose the vessels. The aorta practically had no arch and was near the median line. The innominate artery was wanting. The subclavian artery on the left side was found at the highest part of the arch. There was a wide space between the subclavian artery at its origin and the point where it crossed the first rib. The vena azygos major made a very decided arch coursing over the right half of the chest wall. While the patient had been confined in the asylum he had been in the habit of sitting with his knees drawn up and his head between his knees. This position being the one assumed by him for the most part may account for the adhesions which were present. The course of the phrenic nerve on the left side was normal. The posterior veins were inside of the posterior fold of the pericardium.

THE DESCRIPTIVE ANATOMY OF THE HUMAN HEART.

DR. WILLIAM KEILLER, M.D., F.R.C.S., Edin., of Galveston, Texas, read a paper on this subject. He used a mass of gelatin injected into the common carotid artery or the femoral artery for the preparation of his specimens, and he finds that when the heart has been so prepared it follows in all essential particulars the description of his model. Thus viewed the heart is an irregular four-sided pyramid whose base rests on the diaphragm and whose apex has been removed to afford attachments for the ascending trunks of the great vessels. It presents for examination five surfaces (including the base), a number of borders separating these, an anatomic apex and a clinical apex. The anterior surface is triangular in shape. In sagittal mesial section it is parallel with the sternum. It includes the greater part of the right ventricle, portions of the left ventricle, the left auricular appendix, the entire right appendix, and part of the right auricle. Its superior angle marks the anatomic apex and here the surface merges in the anterior walls of the aorta and pulmonary artery. Its left inferior angle forms the clinical apex. Separated from it by the pericardium are the margins of the lungs and pleura, the sterno-pericardial ligaments, triangularis sterni, internal mammary vessels and sternum. The right surface is markedly convex, quadrilateral, lies almost vertically, and is directed toward the right. It includes the greater part of the right auricle. Its anterior, posterior and inferior borders are only slightly rounded, and are therefore fairly well defined. At its superior extremity the surface blends with the wall of the superior vena cava, and at its posterior inferior angle it is similarly related to the inferior vena cava. It is separated by the pericardium from the right phrenic nerve and vessels, the pleura and inner surface of the right lung.

The left surface is a complex triangular area directed mainly upward and toward the left. It includes about one-half of the free surface of the left ventricle and the left auricular appendix. It presents the proximal extremities of the descending branch of the left coronary artery and great cardiac vein, the marginal and transverse branches of the same artery and the posterior cardiac and coronary veins. It is separated by the pericardium from the left phrenic nerve and vessels, the left pleura surface of the left lung. The posterior surface (dorsal surface) is called the base in text-book descriptions. It is four-sided, rather narrower above than below, is convex, vertical and directed backward. It is formed by the left auricle and by the portion of the right auricle which joins the two venæ cavæ behind. It presents the opening of the coronary vein (right and left), the great coronary vein and coronary sinus and the oblique vein of Marshall which runs down over the sinus to enter the left extremity of the coronary sinus. It is only partially invested by the serous layer of the pericardium—it is so separated by the pericardium from the bronchi, esophagus, vagi, descending aorta, vena azygos major and thoracic duct. The inferior surface (diaphragmatic surface or base) is quadrilateral, slightly convex, or almost flat when the ventricle contains blood. It is formed by a small portion of the right auricle and the opening of the inferior vena cava; the rest of the surface being about equally divided between the right and left ventricles. In addition to the inferior caval opening it presents the inferior extremities of the right (anterior) and left (posterior) interventricular grooves with the right coronary artery embedded in the former and the coronary sinus in the latter. Crossing it diagonally is the inferior interventricular groove with the descending branch of the anterior or right coronary artery and middle cardiac vein. The posterior cardiac vein runs along its posterior border. The apex of the pyramid is formed by the aorta, pulmonary artery and superior vena cava. These structures arise from the heart on a level with the upper margin of the third costo-sternal articulation extending an inch and a half to the left and one inch to the right of the middle line. The clinical apex is indicated by a point between the fifth and sixth ribs three and one-half inches to the left of the middle line. The antero-inferior border may be indicated on the chest wall by an oblique line extending from the clinical apex on the left across and slightly upward to a point one inch to the right of the middle line at the level of the sixth chondro-sternal articulation. Along this line the cardiac blends insensibly with the hepatic dullness. On a level with the fourth chondro-sternal articulation the area of the heart's dullness extends three inches to the left and one and three-quarter inches to the right of the middle line. The author suggests the following changes in the cardiac nomenclature in accordance with the above description. Thus the interventricular grooves are seen to be superior and inferior, the right coronary artery might be called anterior, and its branches respectively infundibular (as at present), right ventricular (now marginal), and inferior interventricular (now descending); the left coronary artery would be better named posterior and its branches superior interventricular (now transverse).

NOMENCLATURE OF NERVE CELLS.

DR. FRANK BAKER, of Washington, D. C., spoke on this subject. He regarded the term neure as the best name to use in describing these cells, because the word lends itself readily to combinations. Thus cells which form nerve roots might be called rhizoneures and cells of the cerebro-spinal axis might be called axoneures. If necessary these cells can be divided into other groups. Short path cells might be called zigoneures or commissural cells, and the long path cells of the cortical surface might be called macrodromioneures. In this way sensory fibers might be called esthenioneures. Other cells which have their origin in the spinal cord and are especially connected with the muscles might be called dynamoneures. The term proposed by Kolliker, or neurodendron, is too long. Other neurologists, among them Dr. Fish, prefer the term neurosite. As neurologists and psychologists are giving considerable attention to this subject it is reasonable to suppose that a better terminology will be adopted than the one now in use.

THE CEREBRAL FISSURES OF TWO PHILOSOPHERS.

DR. B. G. WILDER, of Ithaca, N. Y., presented a paper on this subject illustrated by specimens and a number of photographs. The paper referred to Chauncey Wright of Cambridge, a philosophic writer, critic and mathematician, and James Edward Oliver, Professor of Mathematics in Cornell University. The brain of the former was very different from the average pattern, and the two brains presented a distinct contrast, probably due to the greater activity and larger breadth of the former's scientific research. The reputation of the former was wider and better known than that of Oliver. One peculiarity of both brains was the simplicity of structure. The writer

called attention to the fact that there was no decided standard of comparison for the normal adult American brain, and he suggested that the members of the Association unite in an effort to secure some such standard.

THE HUMAN PAROCCIPITAL FISSURE—SHOULD IT BE SO RECOGNIZED AND DESIGNATED?

DR. B. G. WILDER, of Ithaca, New York, read a paper on this subject. Ten years ago the same writer suggested that the occipital portion of the long fissure called intra-parietal by Turner, inter-parietal by Ecker, and parietal by Pansch, be regarded as a distinct fissure under the title paroccipital, referring to its constant and marked relation to the dorsal end of the occipital (parieto-occipital). The "U" shaped area between the two or first annectant gyrus he proposed to call the paroccipital gyrus. The grounds for this suggestion have been given in the reference "Handbook of the Medical Sciences," VIII, 155, as follows:

"1, in about half the cases examined by the writer there are two fissures separated by an isthmus of greater or less width; 2, when the two are continuous there is always a vadum (shallow) at the point corresponding to the isthmus; 3, each of the two portions, whether separate or continuous, is usually deepest at or near its middle; 4, at their first appearance in the fetus they are always completely independent. While this division is recognized by some observers it is thought needless by others and has not as yet received the sanction of the German Committee on Anatomical Nomenclature." The present paper was intended to review all the accessible literature on the subject as well as the material accumulated by Dr. Wilder in the interval, especially comparing these parts with similar fissures found in apes and monkeys.

On practical grounds the writer believes that the fissure should be recognized and called the paroccipital division of a "fissural complex." Among eight educated persons the isthmus occurred seven times in all but one on the right side. In only one case did the isthmus occur on the left side and not on the right, and that was the case of an insane Swiss patient.

PRACTICAL HISTOLOGY FOR LARGE CLASSES.

DR. CHARLES S. MINOT, of Boston, Mass., spoke as follows: We have given up entirely allowing students to make their own preparations and we find the change to be an advantageous one. Every student is obliged to make a perfect drawing of each preparation and the drawing is judged on its accuracy. The geometric faculty is especially developed. In the second half year they are given practical work, and they then begin the study of the embryo. In commencing the work they are given specimens of the liver, heart, spleen, etc., instead of beginning with a connective tissue, a piece of bone or the like. We find it an advantage to teach embryology as a help to anatomy, and as offering an explanation to a great many relations that would otherwise be obscure.

SOME NOVEL METHODS OF DESCRIPTION OF THE HUMAN SKULL.

DR. HARRISON ALLEN, of Philadelphia, in his remarks upon this subject said:

My method is to secure a formula for each skull. I begin with the supra-orbital ridge, and draw a line between this point and the outer part of the external auditory process. The nasal bone may be divided into three parts, the upper part, the frontal; the main portion, the maxillary; and the third part, the pre-maxillary. In the human skull the third portion is not well defined. The frontal portion is very variable. Holding the bone in such a position as to examine it in profile it is possible to tell the proximal from the distal portion. The latter it is well to call the radix, and below that the salient. Variations in these portions serve to identify the individual. In two skulls of Sandwich Islanders which Dr. Allen presented, the one had a well-developed incisor crest, and the other had not. The anterior nasal spine is simply the end of the incisor crest. It has received the name of infantile, but Dr. Allen prefers the word paidomorphic. The writer believes that the hard palate has not received the attention which its deserves in its posterior part. In negroes the middle lacerated foramen is very much narrowed and is frequently closed. The temporal fossa may be divided into two parts, the fronto-temporal ridge, and parieto-temporal. They are distinctly different. The former is very apt to be closed and is very rarely continuous with the same line as the parieto-temporal. No two skulls show a similar arragement. In a study of the temporal bone the remains of a suture is sometimes found between the squamous and petrous portion. To the lower portion of this suture the name retro-tympanic has been proposed. In speaking of the lachrymal bones Dr. Allen said that scarcely any portion of the lachrymal bone is in advance of the crest. In the North American Indian, and in the Sandwich Islander they are apt to be very small.

OBSERVATIONS ON THE FOSSA CAPITIS AND A TUBERCLE IN THE TROCHANTERIC FOSSA.

DR. F. J. BROCKWAY, of New York City, presented a carefully prepared paper on this subject. The fossa capitis which in the human femur is found at the extremity of that bone and gives attachment to the ligamentum teres, presents ordinarily a well-marked depression. In certain of the lower animals this depression does not exist. The ligamentum teres and the fossa capitis are absent in the elephant, hyrax, rhinoceros, tapir, hippopotamus, hedge-hog, seal, sea otter and walrus. They are absent in the monotremes, echidna and ornythorynchus; of the marsupials, the great kangaroo; of the edentates, the three and two sloth anteater. It is also lacking in one rodent and in one of the insectivora, etc. While a study of comparative anatomy frequently leads to valuable deductions, as to the function of parts of human anatomy, the writer dealt more especially with the human femora. He examined 900 human femora, of which the pedigree of over 400 was known. Moser in his article in Schwalbe's Arbeiten, vol. II, p. 36, says that only one-half of the fossa capitis that he examined presented vascular foramina. Dr. Brockway, however, found that in the 900 adult specimens which he examined, 84 per cent. presented these vascular openings. Twenty-six specimens (2.8 per cent.) presented no fossa at all, and in five cases there was a distinct tubercle in place of a fossa for the insertion of the ligamentum teres. In five cases there were double fossæ occurring on one head. In two cases there was a combination of a fossa and a separate tubercle on the same head. In thirty-six cases the fetal condition persisted, *i. e.*, there was a fossa and a distinct postero-inferior groove descending nearly to the margin of the articular surface, and always pointing toward the line passing up from the lesser trochanter to the inferior border of the neck of the femur. Thus it is possible to determine to which side of the body the femur belongs by noting the direction of this groove; holding the fossa facing the observer the groove points to the side to which it belongs. Twenty-eight cases showed the presence of a fossa and a connected tubercle. The ligamentum teres is not inserted into the whole floor of the fossa, but into its upper half and upper margin. The lower part of the floor is free and the ligamentum teres simply rests upon it Therefore, the vascular foramina are usually confined to the deepest and lowest portions of the fossa. The synovial membrane has a more extensive insertion than the ligament proper. The author described three types of the fossa: first, oval; second, triangular, and third, round. They are all practically the same whether they contain vascular foramina or not. The most common type of all is the oval form (45 per cent.); the next most common the triangular form (34 per cent.), and finally the round type (21 per cent.). Old people are apt to have shallow fossæ, but their foramina are not more apt to be absent than in adult life. Out of twenty-two people over 60, thirteen had shallow fossæ. The character of the foramina and fossæ are not symmetrical on both sides. Out of the 900 bones examined only four could be called "pilastered." Twenty-eight specimens showed a good third trochanter (3 per cent.) not counting an exaggerated gluteal line. Six of these showed also a tubercle in a digital fossa. From a study of these specimens the linea quadrati would seem to be a myth, as Dr. Brockway has never seen it as a distinct line representing the full length of attachment for the quadratus femoris.

DR. D. S. LAMB, of Washington, D. C., showed a colored sketch illustrating

A CASE OF POLYORCHIS.

There were three testicles in the right scrotum and one in the left. They varied somewhat in size, but showed nothing abnormal in the texture of each. Three cords could be distinctly seen and felt passing separately through the external abdominal ring. The patient was a male, white, aged 45; well developed and enjoyed good health. He was a widower with two children. He has offered to submit to operation if sufficient remuneration was offered. A comparatively small number of cases of supernumerary testicles have been reported. A number of them, if not the majority, have been questionable. Armstrong, Blumener, Bulaboff, Hauser, Hewitt, Hough, Jacobovics, Kennow, Hetard, MacCann, McElmoil, Mercklin, Pranken, Sibbern, Stewart and Vanchrin have reported cases. Dr. Hewitt's case seems to be well authenticated and is as follows: The patient was a soldier with two distinct testicles and cords in the left scrotum. The cords united before entering the abdominal ring. This man is alive at the present time and the condition has existed since birth.

DR. LAMB also presented a "Note on the Appearance of a Unilateral Tuberosity in Place of the Trochanteric Fossa," with specimen.

SELECTIONS.

Recent Contributions to the Etiology of Malignant Tumors.—The very recent demonstrations that certain peculiar microörganisms of the class of blastomycetes possess the power to produce in animals tumor-like growths in which are cell inclusions, have brought into renewed prominence the question concerning the nature of malignant tumors.

Otto Busse[1] discovered in a case which was regarded clinically as a sarcoma of the tibia, but which the post-mortem examination showed to be a strange case of chronic pyemia with collections of giant cells in the purulent foci, numerous clear and transparent bodies that could be cultivated upon ordinary media. According to their morphology and biology these microörganisms were saccharomyces or yeast fungi, and Busse entitles one of his communications upon this interesting observation "Saccharomycosis Hominis." Following are the principal conclusions in regard to Busse's case of this new disease:

Saccharomycosis hominis is an infectious disease, due to a pathogenic yeast fungus, and characterized by purulent foci in the skin, the bones, the lungs, the kidneys and the spleen. The fungi lie either in the cells, mostly in giant cells ("cell-inclusions"), or outside the cells in the tissue spaces. They are in part naked, in part surrounded by a homogeneous halo as if possessed of a capsule. The majority of the parasites reveal within the capsule, a center with a double contour in which lie one or more glistening bodies. The shape of the organisms is usually circular, the size varying between that of a large nuclear body and that of a liver cell. The saccharomyces can be cultivated in bouillon, gelatin, agar, blood serum, glycerin agar, potato and acid decoction of plums. The cultures usually have a white color, and growth occurs at a temperature varying between 10 and 38 degrees C. In young cultures the organisms present a single contour, only after several days is it possible to recognize a distinct membrane. In plum decoction and grape-sugar bouillon the fungi causes a considerable fermentation, resulting in the production of alcohol and carbonic acid. The microörganism can be transferred to the body of animals, and here they multiply and cause a local, slow suppuration, accompanied with the formation of granulation tissue rich in giant cells and "inclusions," that gradually subsides. In white mice they cause death, and are then present in large numbers in the blood.

A little later Sanfelice[2] cultivated from the air a certain form of yeast fungus which, when inoculated into animals, caused small ulcers with the formation of new tissue that reminded one of a neoplastic growth very similar to epithelioma. And then Maffucci and Sirleo[3] found an organism, similar to the one described by Sanfelice, in a guinea pig that died from marasmus; and which was pathogenic for animals.

From these investigations it is apparent that some of the blastomycetes belong to the parasites of the animal body, and that they are capable of inducing processes of proliferation that in some phase of their development are not unlike some of the malignant tumors. The presence of the saccharomyces within the cells of the proliferating tissue has awakened the hope that we were in a fair way to obtain definite and conclusive evidence that some at least of the various "cell inclusions" described by many workers in carcinoma, and sarcoma also, were really microörganisms as believed to be the case by not a few scientists. Should it be proven that these intracellular formations in carcinoma and sarcoma were forms of fungi, belonging to the blastomycetes, then the sporozoan theory in regard to the etiology of malignant tumors would have to be abandoned, while the general theory of the parasitic nature of these growths would seem to receive evidence of a very positive nature. It would then appear that all the authors referred to had in reality described and seen genuine parasites, but that they had erred in giving these organisms a place among sporozoa, and that the persistent but fruitless search for spores and sporocytes had indeed been in vain because such structures are not produced by yeast fungi. It would be some consolation at any rate to know that all the time technical skill and energy expended during the last years in the microscopic study of malignant tumors in the search for their cause were, in spite of all the confusion and contradiction that resulted, to be crowned with final success, even though of a different kind than was believed by many of these tireless workers. It is consequently of great interest to read that certain Italian investigators continue to describe the presence of forms of yeast fungi in tumor growths that seemed to them to correspond to certain definite varieties of carcinoma and sarcoma in the sense that these terms are used in medical literature of to-day. Thus Roncali[4] describes certain parasites in adeno-carcinoma of the ovary. In one case he found them very numerously in the cytoplasm (not the karyoplasm) of cells lying in the stroma of the tumor. In the second case he found these structures in the cell protoplasm and between the connective tissue bundles of the ovarian tumor, which was removed by Durante: also in the metastatic nodules in the omentum which were present. These parasites were identic in form and staining properties with the fungus that Sanfelice used in his experimental studies. It does not appear, however, that Roncali made any culture experiments with the tissues at his disposal, and consequently his observations at most confirm the supposition that the "cell-inclusions" of the recent workers in this field were, in the first place, parasites, and secondly, blastomycetes and not sporozoa. Then Corselli and Frisco[5] make a preliminary communication of the results of their studies of a case clinically diagnosed as sarcoma of the mesenteric lymph glands, with milky effusion into the peritoneal cavity. The post-mortem examination showed a neoplastic mass composed of new-formed mesenteric lymphatic glands, small ulcers on the mesentery and small intestines, and a large quantity of milky fluid in the peritoneal and pleural cavities. The microscopic examination of this fluid revealed single, or collections in pairs, of oval cellular forms of various sizes. The same formations were obtained in pure cultures from the fluid in the pleural cavities and from the ulcers. Colonies were grown on fucus (seaweed), gelatin and agar. On potato, fruits and decoctions inoculations gave no results. Morphologically and developmentally the parasites presented the same characteristics as the saccharomyces. In the sections from the tumor small cell forms, with granular brownish pigment in their interior were found. The authors believe this pigment to have been formed in the body of the patient. In many instances, distinct evidences of multiplication in the shape of budding processes were also observed.

Animal inoculations were made with the pure cultures and with the milky fluid, and it was found that in guinea pigs, dogs, and rabbits neoplastic proliferation processes occurred in various parts of the body, but especially in the lymph glands; the anatomic structure of, and the arrangement of the parasites in, these animal focci of proliferation were analogous to these in the human mesenteric tumor so that it seems to have been demonstrated that the parasites isolated were the true, specific agents in both instances. The discovery of the fungi described in connection with tumors of the mesenteric glands and chyliform ascites gives the study of chyliform ascites a new direction, to say nothing about the relation of this demonstration to the causation of malignant tumors.

[1] Centralblatt für Bact., 1894, p. 175, and Virchow's Archiv, April, 1895.
[2] Centralblatt für Bact. 1895, No. 4, and Annali d'Igiene Sperimentali. Vol. v, Fas. 2.
[3] Il Policlinico, March, 1895.
[4] Il Policlinico, February, 1895, and Centralbl. für Bakteriologie, Oct. 15, 1895.
[5] Centralbl. für Bact., Oct. 15, 1895.

In this connection reference may be made to certain peculiar, round or oval bodies described by Flexner,[6] in a case of multiple lympho-sarcomata. These bodies were free, and apparently entirely foreign to the tissue in which they were found. Flexner thought they were, perhaps, protozoa, but could not say anything definite as to their nature.

In summarizing these recent contributions to the study of the etiology of malignant tumors it can be said that Busse and Corselli and Frisco have succeeded in demonstrating that organisms, belonging to the groups of blastomycetes, may appear in a pathogenic role in man and animals, producing peculiar processes, in some respects very similar to certain forms of malignant tumors: that Sanfelice and Malfucci and Sirleo have demonstrated that this group of microörganisms is pathogenic for animals, initiating tissue proliferations not unlike true neoplasms; and that Roncali makes the claim to have shown histologically that the same parasite was present in two cases of adeno-carcinoma of the ovary. Inasmuch as there is good reason to doubt the true tumor nature of the cases of Busse and of Corselli and Frisco—in fact Busse does not at all claim his case to be one of sarcoma—and inasmuch as Roncali did not cultivate the parasite from his case and reproduce by inoculation into suitable tissue an adeno-carcinoma, the writer is of the opinion that the results of these researches have far greater importance in showing that hitherto unknown infectious processes may be caused by yeast fungi than in establishing the parasitic nature of carcinoma and sarcoma. It may be that instances of infection with yeast fungi, like those described by these authors, have been included under the term sarcoma, the various histologic forms of which may harbor such peculiar processes which Busse and others describe; the word sarcoma may be found to have been applied to a variety of different infectious processes because the structure of its numerous varieties is often not unlike granulation tissue. The convincing proof that carcinoma and the distinct forms of sarcoma are due to blastomycetes, or other parasites, is still lacking; no one has as yet isolated and cultivated the parasite, and reproduced typical tumors by inoculation into susceptible animals. That yeast fungi are pathogenic and may give rise to fatal forms of infection, accompanied with tissue proliferation, and parasitic cell inclusions, are discoveries of far-reaching importance; and continued work in this new direction will undoubtedly yield far more valuable and satisfactory results, even as regards the great problem of the etiology of malignant tumors, than the discouraging efforts to prove the sporozoan theory of their origin by histologic examination only.

Recent Researches on Gout.—The theories as to the causation of gout are still obscure, and the rôle of uric acid in the morbid process is far from being elucidated. All we know is that during the course of the disease regional inflammations are produced with necrotic tendencies, that these inflammatory foci are usually in relation to the deposits of uric acid, but the latter may be missing. A striking example of the latter is found in the necropsy on Professor Cohnheim. For many years this savant had suffered from grave attacks of gout, yet no trace of uric acid deposits were found.

Garrod in his classic work admits there is an increase of uric acid in the blood with diminished elimination in the urine by reason of a functional alteration in the kidney. He supports his opinion by ingenious experiments. When this uric acid has attained a sufficient degree of concentration in the blood it should produce an inflammatory reaction in the tissues with formation of necroses. Ebstein adopts Garrod's ideas in full, save on one point. According to this author the crystallized uric acid is not the cause of the necrosis, the latter is primitive and is a consequence of the diathesis which causes the increase of the uric acid itself. Treatment therefore should be directed toward the excess of uric acid in the blood. Later on, the methods of analyzing uric acid (Salkowski) showed that the problem was not as simple as had been thought. The elimination of uric acid was sometimes increased, sometimes diminished. Up to the present no analyses have been made of the uric acid in the blood of gouty patients. Nevertheless we find figures similar to those of Garrod in other diseases, for instance in pneumonia. Hence this theory is somewhat unsettled; in fact Van Noorden in his recent work accords it no value whatever. He attributes the principal rôle to the necrosis, and the uric acid found in the inflammatory foci is formed, he says, in these points without any relation with the uric acid of the blood. This uncertainty in theories led Klemperer to make some researches in Leyden's clinic for the purpose of elucidating some points. First of all the quantity of uric acid in the blood of healthy men was to be determined. In no case were appreciable quantities found. Then the quantity of uric acid in the blood of three gouty patients during the attacks was determined, and the same amount found that Garrod indicates (0.05 gr. to 0.1). In one patient the proportion was 0.088, in the second 0.067 and in the third 0.0915. While this shows that the blood during gouty attacks is rich in uric acid, it is not conclusive, for Klemperer found 0.985 gr. in a case of leukemia and 0.0165 gr. and 0.0685 in two cases of nephritis. On the other hand, uranalysis in the second and third patients gave 0.423 and 0.710 of acid, so we can not conclude there was a diminution in the elimination. Finally, a great number of uranalyses were made in gouty patients between and during the attacks, but there was no concordance between the access and the quantity of uric acid. Hence the analysis of this acid in the urine is of no value in the diagnosis. As to the production of necroses by stasis of the uric acid in the tissues, it is necessary to first establish the quantity of the acid soluble in the blood, for if this is precipitated from the blood it is because the latter is saturated. Blood serum from three healthy individuals was digested with uric acid at 37°. It was found that 100 cubic centimeters of the blood had dissolved in one case 0.166 gr. in another 0.171, and in the third 0.143 of the acid. The same experiment repeated with blood from the three gouty individuals taken during the paroxysms gave 0.14, 0.126, and 0.18 (the most grave attack). It seems from these researches that the blood of gouty patients even during the attacks may still dissolve large quantities of the acid, and we can not admit there is a supersaturation and consecutive precipitation during the paroxysms.

It might be claimed that the blood is less alkalin during the attack and the uric acid is precipitated. Experiments made on the three patients gave 28, 31 and 33 volumes per cent. of carbonic acid, figures but little lower than the normal (36 volumes per cent.). Hence this hypothesis also fails us. What, then, is the origin of the necrotic process? For answer we can only invoke analogies. Thus we may cite observations on saturnine intoxication. Garrod, and later on Leyden, showed that in cases of lead poisoning there are foci of necrotic inflammation very similar to those in the gouty. We are now prepared to admit that certain toxic substances circulating for a long time in the blood cause necroses in which uric acid is deposited. Alcohol acts in the same manner as lead. If the toxic agent of gout is still unknown to us it is certain at least that it oxidizes very readily, and that anything increasing its oxidation diminishes the attacks. Treatment, then, should be directed toward increasing oxidation. For this purpose we may recommend moderate alimentation, appropriate muscular exercise and abundance of drinks.—*Les Nouveaux Remèdes*, 1895, No. 15.

Hoppe-Seyler.—In a consideration of the life of Hoppe-Seyler it is brought to notice that we owe to him much of our knowledge of the inter-relations of chemistry and physiology, from

[6] Johns Hopkins Hospital Reports, Vol. III, p. 171, 1893.

the fundamental principles of the one to the highest problems of the other. It was his aim to secure for physiologic chemistry a position as an independent branch of science. At an early period he was an assistant with Virchow. He filled the chair of applied chemistry at Tübingen eleven years. Then, in 1872, at the reëstablishment of the University of Strassburg, he was selected above many to increase its scientific reputation, and there he remained to the end. In 1884 an independent institute was built for him. His published works are exceptionally numerous; at first in anatomy and medicine, as studies on cartilage, bone, teeth, the theory of percussion. He soon turned to medical chemistry and wrote on chondrin, serous transudates, the influence of cane sugar on digestion, etc. Then came a paper on the effect of carbonic acid on the blood, in which the chemic proof of carbonic acid poisoning was first shown in the dead body. This was the beginning of a long series of researches on the blood. In 1862 he first described the spectrum of hemoglobin. To him is due the proof that oxyhemoglobin does not accomplish the physiologic oxidation in the blood of albumin, fat and sugar, as had been often assumed, but that it is to be regarded as a means of carrying oxygen into the tissues. He showed how to obtain blood crystals pure. He recognized that oxygen gave to hemoglobin its power to resist decomposition and the pancreatic juice, and proved the elaboration of oxygen in green plants. There is hardly a branch of physiologic chemistry that has not been advanced by Hoppe-Seyler. He bestowed careful work on the composition of bile, on enamel, pus, milk, urine, lecithin, nuclein, the great group of albuminous bodies which he arranged in a plain and natural system. So in the chemistry of plants there is his work on chlorophyll, on the influence of algæ on the gases of fermentation. His researches on fermentation and putrefaction are extensive. With all these manifold works, he yet held in view those powerful forces which have so influenced the earth's crust. So we find investigations on the formation of anhydrite and dolomite, on flow of gas in coal strata, on the optical properties of oxid of manganese, the production of light by motion of atoms. These show us on what a broad foundation his knowledge and investigations were developed.

His Physiologic Chemistry, begun in 1877 and finished in 1881, is a work of great importance and had the task of embodying in a connected manner all known facts. Much earlier appeared his "Handbook of Physiological and Pathologico-chemical Analysis," which rested in great part on methods original with Hoppe-Seyler. This extensively-used book is now in its sixth edition by Hoppe-Seyler and Thierfelder. The lack of a special journal for physiologic chemistry led him, in 1877, to establish the *Zeitschrift für Physiologische Chemie*, which has a well-assured existence. Naturally pupils came from all over the world to work with him: a great number of publications arose under his direction and bore witness to the enthusiasm which reigned in his laboratory. Preparations to celebrate his next birthday were brought to an end by the news of his death. A great gap remains where this man of science stood.—*Wiener Klinische Rundschau*, August 25, 1895.

The Prevention of Cholera; Dr. Haffkine's Work in India.—The very able address given by Dr. Haffkine at the Examination Hall of the Royal College of Physicians and Surgeons, explained the results of the work which he has done during the past two years and a half in India in carrying out the practice of his method of vaccination as a preventive of cholera in India. Dr. Haffkine's work is of the highest scientific value and promises to confer a great boon on the Indian empire. It has been carried out under circumstances of the most remarkable self-sacrifice and devotion to the interests of humanity and of science. He has given many of the best years of his life to this research, and has with unwearying industry and transparent sincerity worked out in India all the details which can test the value of this new gift to science to life-saving purposes, without fee or reward other than his own conscience, his love to humanity and his scientific devotion. Dr. Haffkine has with steady diligence and unquestionable enthusiasm braved every danger, and endured the extremes of climate and of unhealthy seasons. He has listened to the appeals from every direction regardless of personal risk and unmindful of his own health, which has suffered greatly. He returns to Europe greatly debilitated by the continuous trials of his arduous labors. In India he earned the respect and affection of all with whom he came in contact. His unaffected simplicity of character, his undeviating search for the truth regardless of any other object than that of the largest possible application and the most rigorous tests of his method, have won for him universal esteem. It is fitting that his first great public reception should have been in this country, for it is in the Indian empire that his discovery and his invention will find its largest field of usefulness, and while the boon which he has conferred on humanity is one which all the world must recognize, and by which all will be benefited indirectly, even where not directly, still it is especially in the Indian endemic home of cholera that the application of this method will find a most useful field. It may be hoped that with the larger views on sanitation which the Indian government is now adopting and carrying out, and with the universal recognition in India and the unspeakable importance of recognizing the water-borne theory of the causation of cholera, the necessity for the application of Dr. Haffkine's method will become narrowed within diminishing limits.

Dr. Haffkine concluded his address by a touching, eloquent, and deeply-felt tribute to the memory of his illustrious master, Pasteur, from whom he derived his inspiration, and who gave, it should be remembered, the most generous financial help, as well as his scientific aid and countenance, to this great enterprise of Dr. Haffkine. The adoption of the Pasteur filter throughout India, where it is now being extensively introduced, will in its own way tend probably almost as largely to prevent the development of cholera as Dr. Haffkine's vaccination will limit its extension within the areas of its prevalence. Thus Pasteur's name will be doubly connected with the crusade against this terrible plague, which usually slays hundreds of thousands in the Indian empire, and thus extends its ravages from time to time to European countries. The Pasteur filter and Haffkine-Pasteur vaccinations will go hand in hand in rendering this great service to humanity. The tribute which Dr. Haffkine paid to the memory of his great master comes at a timely moment, and every one who reads his luminous and convincing address will feel that his concluding words are not the least interesting part of it. We trust that the Indian Government may see its way to some just and adequate recognition of the unstinting services which Dr. Haffkine has rendered to the great Indian dominions, and that his unexampled devotion and self-sacrifice will not pass without due official recognition.—*British Medical Journal*, December 21.

Can Leprosy be Stamped Out?—The London letter writer for the *American Practitioner and News* speaks hopefully of a proposed new treatment of leprosy, by the artificial induction of erysipelas upon the leprous members of the patient. He credits the suggestion to Dr. W. Impey, Medical Superintendent of the leper settlement at Robben Island, Table Bay, who is now in England on a six months' leave of absence. During his vacation he intends to visit the various leper establishments in Norway, Russia, Turkey, and the south of France, in order to see the method of treatment, and if possible to experiment with a view of testing what he believes to be an effectual cure for the disease in its earlier stages. Dr. Impey has found that at Robben Island, where there are six hundred lepers, that when a patient is attacked with any inflammatory skin disease, such as measles, erysipelas, or smallpox, the part affected is invariably cured of leprosy, and the patient either entirely recovers from leprosy or his life is indefinitely prolonged beyond the normal eight years. Dr. Impey contends that erysipelas should be induced within three or four years if a patient be attacked, and by this means he thinks leprosy may eventually be stamped out.

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SATURDAY, JANUARY 11, 1896.

DECIDUOMA MALIGNUM.

The history of the malignant tumors following normal labor, abortion, hydatidiform mole, or extra-uterine pregnancy and composed of decidual or placental elements, begins with SÆNGER's[1] report to the Leipzig Obstetrical Society, July 16, 1888, of "two unusual cases of abortion," one of which occurred in a 23-year-old woman, who aborted in the eighth week and died seven months later, with four large, soft, spongy, reddish tumors in the uterine wall and metastases of the same character in the lungs, diaphragm, tenth rib and right iliac fossa. The microscopic examination showed a hemorrhagic structure with cells similar to those found in the decidua; he named the tumor "deciduoma malignum." In 1893 SÆNGER published a more extensive monograph[2] in which he collected all that was known of this kind of tumor and compared his case with those which had been described since his first report.

The year after SÆNGER's first report PFEIFER described a similar case from Chiari's institute in Prague, and without knowing of SÆNGER's previous work, likewise proposed to call it a deciduoma malignum. During the last five or six years the number of such cases has increased rapidly; the majority of the cases have been described by German authors, a few by French and Italian observers, but in this country and in England a well authenticated case had not been reported until WILLIAMS,[3] of Baltimore, very recently described what he called a typical case. It is also true that BACON, of Chicago, described a case from Chiari's institute in the *American Journal of Obstetrics*, vol. XXXI, No. 5, 1895, so that now when the attention of American workers has been directed to the subject it may be expected that more cases of deciduoma will be recognized and studied in this country than heretofore.

References to this tumor are not found in many of the recent American or English text-books. As WILLIAMS[4] says, it is apparent to any one who has read the various descriptions of the authors, that the growths which have been described as malignant deciduomata, or by more or less cognate terms, differ very materially among themselves, and an idea as to the various interpretations is well gained by enumerating some of the designations which have been applied to them. SÆNGER at first called his case deciduoma malignum, and later sarcoma uteri deciduo-cellulare. GOTTSCHALK[5] first called his case sarcoma chorion-deciduo-cellulare, later sarcoma chorii; FRÆNKEL,[6] carcinoma arising from the chorionic epithelium; KLEBS,[7] placental papilloma, etc. But in spite of the differences in the onkologic and histogenetic interpretation of the growths, these so variously designated tumors form a distinct clinical group. They all follow closely upon some form of pregnancy, either abortion, normal labor, hydatidiform mole or extra-uterine pregnancy, and quickly lead to the death of the patient with the rapid formation of metastases, especially in the lungs and the vagina. In order to group all these tumors under some distinctive designation, which will enable one to speak of them from a clinical stundpoint, without at the same time wishing to express any definite connection as regards their intimate origin and structure, WILLIAMS[8] proposes that the term deciduoma malignum be retained as best suited for this purpose at the present time. After thoroughly sifting the accumulated material WILLIAMS finds that at least twenty-six cases have already been described which from a clinical standpoint should undoubtedly be classed among the malignant deciduomata. The etiology of this tumor is unknown. The most striking etiologic relation is its close connection with pregnancy of some form. Of the twenty-six cases referred to eleven followed hydatidiform moles, six full-term pregnancies, five abortions, one a tubal pregnancy and in three cases the form of pregnancy preceding the tumor is not stated. The majority of deciduomata maligna occur in young women. One case occurred before the 17th year, twelve cases between 20 and 30, five between 30 and 40, four between 40 and 50, one case occurred at 55 and in three the age was not stated. The most constant symptoms is uterine hemorrhage following pregnancy in some form; it may appear immediately after the completion of labor or abortion or be delayed until some months later. This hemorrhage occurs at intervals, and is

[1] Centralblt. f. Gyn., 1889, 132.
[2] Arch. f. Gyn., XLIX, 89-149, 1893.
[3] Johns Hopkins Hospital Bulletin, Dec., 1894, and Johns Hopkins Hospital Reports, vol. IV, No. 9, 1895.
[4] Loc. cit., p. 26.
[5] Berl. Kl. Wochenschr., 1893, No. 4, and Arch. f. Gyn., XLVI, 1894.
[6] Arch. f. Gyn., XLVIII, 1895.
[7] Die Allgem. Path., II Theil, 690, 1889. [8] Loc. cit.

usually of a gushing kind. The uterine cavity is more or less completely filled by a soft reddish placental-like mass. After removal the mass returns rapidly and invades the uterine wall. Hemorrhage may be absent. The rapid formation of metastases and early death are characteristic. The secondary tumors develop most frequently in the lungs and the vagina, pulmonary growths being observed in almost every fatal case; vaginal metastases were observed in 58 per cent. of the fatal cases. Death usually occurs within six months of the first appearance of symptoms. To one whose attention has been directed to this class of cases, the occurrence of hemorrhage soon after normal labor, abortion or hydatidiform mole, which recurs after curetting and becomes associated with symptoms of pulmonary involvement and perhaps vaginal tumors, would point strongly to a probable clinical diagnosis of malignant deciduoma. In the early stages diagnosis can only be made by means of the microscope. Here the presence of decidual cells or masses of syncytium making their way between the muscle cells would enable one to make a positive diagnosis, as has already been done by GOTTSCHALK,[9] MENGE[10] and others. The treatment that would hold out any hopes whatsoever for permanent recovery is total extirpation of the uterus with its appendages after an early diagnosis. Thus far seven cases have been operated on in this manner; three of these died from recurrence of the growth, six seven and twelve months respectively after the removal of the uterus. The other four cases recovered from the operation, but sufficient time has not yet elapsed to allow any judgment of its ultimate success. The onkologic relations and histogenesis of these tumors that have been referred to in the foregoing as representing a distinct clinical group to which the name of deciduoma malignum may not unfittingly be applied, are somewhat difficult to understand and have been variously interpreted by the writers. This fact, it has been pointed out, is strikingly illustrated by the extensive variety of descriptive terms introduced from time to time to express the opinions of the authors as regards the structure and origin of the tumors they had occasion to study.

These tumors arise in a locality in which fetal and maternal tissues come in close contact and in which epithelial and mesoblastic cells are closely blended and consequently the questions which constantly presented themselves have been those relating to the possible origin of the tumor, whether fetal or maternal, and to the histologic structure of the neoplasm, whether carcinoma, sarcoma or mixed. These questions have been quite clearly solved in some instances, in others positive conclusions could not be reached. A very brief review of some of the more typical cases will undoubtedly tend to show that deciduoma malignum includes tumors of different structure and histogenetic origin. SÆNGER's, PFEIFER's, CHIARI's and BACON's cases all showed that the solid parts of the tumor as well as the wall of the blood spaces were made up of typical decidual cells lying in a connective tissue stroma, so that one can be quite safe in concluding that these were all instances of sarcoma uteri deciduo-cellulare. In the cases described by MEYER,[11] KLEBS,[12] GOTTSCHALK,[13] FRÆNKEL,[14] MARCHAND,[15] WILLIAMS[16] and others the tumors were composed largely of blood, certain irregular protoplasmic masses that are easily traced to the chorionic epithelium or syncytium, and also certain individual cells concerning the origin of which more or less uncertainty of opinion prevails. The weight of opinion of to-day is in favor of regarding the syncytial covering of the villi as coming from the uterine or tubal epithelium, consequently of maternal origin, and the form of deciduoma which consists essentially of syncytial masses, as in FRÆNKEL's case, would be, in accordance with this statement or view, a carcinoma of maternal origin (carcinoma syncytiale, chorio-carcinoma). The distinct, individual cells which are found in some at least of these syncytial carcinomas have received varying interpretations. Thus MARCHAND,[17] whose recent studies concerning the so-called "decidual" tumors following normal labor, abortion, hydatidiform mole and extra-uterine pregnancy, have attracted so much attention, traces the component elements of many "decidual" tumors to, 1, the syncytium,, *i. e.*, the uterine epithelial layer of the chorion from which giant cell-like and irregular protoplasmic masses come, and 2, to the cellular layer of LANGHAN's, *i. e.*, the ectodermal fetal chorionic epithelium. MARCHAND says that the peculiar symbiosis which normally characterizes these elements likewise explains their combination in the tumor formation; this peculiarity extends to the entire arrangement of the two forms of tissue and to the formation of blood spaces within the syncytium and the lack of other vessels. While MARCHAND's views in regard to the very important part played by the syncytium has been favorably received as a rule, his teachings as to the origin of the smaller cells found in these tumors have not met with such universal approval. Thus WILLIAMS is inclined to think that the cells which MARCHAND considers derived from the fetal ectoderm, may after all only represent cross sections through syncytial masses; and KOSSMANN[18] regards MARCHAND's assumption in regard to the chorionic ectoderm as untenable, because the new growth extends outward away from the fetus instead of into the fetus as one would expect. KOSSMANN traces the small distinct cells back to the syncytium and re-

[9] Berl. Kl. Wochenschr., 1893, No. 4.
[10] Zeit. f. Geb. u. Gyn., XXX, 1894.
[11] Arch. f. Gyn., XXXIII, 1888.
[12] Loc. cit. [13] Loc. cit.
[14] Arch. f. Gyn., XLVIII, 1895.
[15] Monats. f. Geb. u. Gyn. I, 1895.
[16] Loc. cit. [17] Monats. f. Geb. u. Gyn., Juli, 1895.
[18] Zeitschrift f. Geb. u. Gyn., XXXIII, II Heft, p. 376, 1895.

gards them as having been formed in syncytial masses in which the cell boundaries have reappeared. GOTTSCHALK[19] can not abandon the idea that the tumor described by him as sarcoma of the chorionic villi is in part, at least, a sarcoma and consequently he insists that tumor proliferation may also occur in the stroma of the chorionic villi, as well as in the epithelium. The majority of the writers doubt the correctness of GOTTSCHALK's conclusions.

A case described by MENGE[20] seems to represent the third possible anatomic and histogenetic variety of deciduoma malignum, namely a mixed sarcoma and carcinoma. In his tumor there are apparently decidual cells and masses from the syncytium, so that the tumor is derived from both the connective tissue and the epithelial elements of the decidua, if the maternal origin of the latter be accepted. We may summarize the present status of opinion concerning the onkologic relations of the anatomic varieties of deciduoma malignum as follows:

1. There is a sarcoma uteri deciduo-cellulare, cases of which have been described by SÆNGER, PFEIFER, CHIARI, BACON and others.

2. The is a syncytial or chorionic carcinoma of the uterus produced by malignant proliferation in the uterine epithelial layer of chorion (FRÆNKEL, WILLIAMS, KOSSMAN) and in the fetal ectoderm (MARCHAND).

3. There may be a mixed sarcoma and carcinoma (carcino-sarcoma) made up of decidual cells and syncytium (MENGE).

4. The tendency of opinion is to regard all these tumors as of maternal origin, but it must be remembered that definite conclusions on this point can not well be reached as long as the embryologists are not of one mind as to the fetal or maternal nature of the tissues in question.

FIREPROOF STAIRS FOR HOSPITALS AND FACTORIES.

The *Sanitary Record* has the following compilation from German journals concerning the researches and experimentation now progressing in that country for the prevention of life loss by fire, where faulty stairs exist in factories, hospitals, hotels and lodging-houses.

Since the terrible fire at Aachen on Dec. 1, 1893, when a number of lives were lost through the stairs becoming early impassable from smoke and flame, the question of the best means of avoiding such a catastrophe, whether in factories, in industrial block dwellings, or in public institutions, has engaged the attention or many architects in Germany. K. Henrici recommends that all stairs should be completely shut off from the workshops and rooms by absolutely fireproof walls; that they should be connected with these by open corridors, balconies or bridges easily reached, that the windows of the stairs be so placed as not to be exposed to smoke or flame issuing from the building. With these precautions, and direct access to the open air below it does not much matter, in his opinion, whether the stairs are at the side or in the middle of the building. Oppermann maintains, on the other hand, that perfect safety can be secured only by having the stairs in a tower completely isolated from the body of the building, communication being effected solely by means of bridges. But unprotected iron structures are not to be trusted, since, if exposed to the flames, they become rapidly heated. He would give the preference to arches of brick work without any iron, but remarks that the weight and stress of the arch might be greatly reduced by the use of highly porous Lochstein, while the iron girders necessary for the support of bridges, balconies and galleries, should be well protected by non-conducting and fireproof materials, of which slag wool, enclosed in a shell of one or other of fireproof cements, is certainly the best. The Lochstein mentioned by Oppermann is an artificial stone, a sort of spongy concrete, manufactured at one or two places on the Rhine. For the steps themselves iron would be the very worst material; these, if not of brick or stone, should be of hard, slow-burning wood, as oak or teak, in solid sleeper-like blocks.

[19] Zeitschr. f. Geb. u. Gyn., XXXIII, II Heft. p. 349, 1895.
[20] Loc. cit.

THE LAY SUPERINTENDENT AGAIN.

The chief medical officer of the Cook County Lunatic Asylum has just been under trial before the County Civil Service Board for insubordination to the lay head of the institution. It appears that he made arrangements for a post-mortem of a patient whose death he could not otherwise certify without consulting his superior.

It is a strange condition of affairs when a medical chief of a medical institution can not decide medical questions without the interference of a non-medical official and must be tried for insubordination if he attempts so to do. Not long since the profession in this country was profoundly stirred in behalf of a naval surgeon who was court-martialed for not obeying an order of his superior in a matter that his medical conscience would not permit him to act as he was commanded. He, however, was simply a subordinate in a war ship—a fighting machine—where according to naval discipline the combatant officer must be supreme; it was not in a hospital, the main and only function of which is medical, and where every thing in its administration has a medical bearing that can only be properly estimated by an educated physician. To make the cases parallel, the doctor should have court-martialed the admiral for not consulting him in some matter of naval tactics or navi-

gation, as here the man with simply a business training and no medical qualifications whatever assumes to dictate in matters beyond his proper scope and to discipline the one who should in the proper order of things be his chief, for not responding to his dictation.

In an article entitled "Politics and the Insane," in the *North American Review* of last October, DR. HENRY S. WILLIAMS scores severely the municipal charities of several of the chief cities of our country, and especially those connected with the care and treatment of the insane. Whatever grounds he may have had for his strictures on the others, there is much in the past record of the Cook County institution that support his statements, and the present incident will not advance its reputation as a notable example of what a hospital for the insane ought to be.

The fact is, the medical profession too supinely accepts the situation when so-called business men take upon themselves functions that ought properly to be deputed to qualified physicians. The much talked-of superior business ability of laymen in charge of medical institutions is a fiction; very ordinary business ability is really required, and it should be easily found in subordinates under the direction of one qualified to see the medical bearings of all matters of management and administration. It is not super-eminent "business" ability nearly as much as common honesty that is required in the lay administration of a public medical charity, and experience in the past has demonstrated that this essential can not be too carefully looked after. By the same test of experience it is easily shown that the most satisfactorily conducted asylums or hospitals are always those under a medical head and where the professional rather than the business ideal is supreme.

We should be glad to see the same general interest taken by the medical profession in this as in the Kershner case, and to have a general expression of the condemnation of lay management of purely medical matters and lay dictation in questions that can properly be only decided by qualified physicians. There is no lack of competent medical men, but they are not likely to want to assume positions where their professional feelings will be outraged and their proper functions usurped by those who are incapable of appreciating the one and incompetent for the other. There has been and is too much of this sort of thing, and we are too often impudently asked "what are we going to do about it.?" It is time that there should be some expression of medical opinion in regard to it.

The reinstatement of DR. MCGREW was an act of justice, but according to report, the order of restoration was accompanied with a "caution" to be "more careful in observance of the rules." This is equivalent to saying, "not guilty, but don't do it again." The principle involved, the complaint of the medical profession, is thus not recognized.

CORRESPONDENCE.

Typhoid Fever

AS SEEN AND TREATED FORTY YEARS AGO COMPARED WITH THE TREATMENT OF THE SAME DISEASE AT THE PRESENT TIME.

To the Editor:—When attending the lectures of Prof. J. K. Mitchell, in the Jefferson, 1853, I remember of his theory that typhoid fever and other fevers were caused by fungi. He wrote a book on the subject. Should any member of the class of 1853 read these lines they will bear me out in these statements. He asked me in the green room what was the duty of a physician when called to a patient with typhoid fever. I gave him in reply the verbatim statement he gave in his lectures, that he should act in the capacity of a pilot or steersman on a boat to steer the craft clear of dangerous breakers. This was found to be a difficult thing to do. We found the tongue heavily coated, dry and cracked, lesion of the glands of the small and large intestines, tympanites, hemorrhage, and sometimes perforation of the bowels with other alarming symptoms. I will not occupy your time reading the treatment of typhoid fever forty years ago, for it was too unsatisfactory with too great mortality Have we any more light on the subject? Are we treating it more satisfactorily and with more favorable results? I say yes. Thanks to Dr. Woodbridge for his abortive treatment of typhoid fever. I have treated eighteen cases this fall precisely as he directed in papers read by him at San Francisco, Baltimore, and other society meetings, without a single loss. Where the disease was not complicated I had none of those dangerous breaker symptoms. Instead moist tongues, no tympanites, no tenderness, no lesions, no hemorrhage nor perforation of bowels. Why such difference in symptoms and results? Because we sterilize the alimentary canal, preventing parasites from locating and doing mischief therein. If called in time I have no more fear of fatal results in typhoid fever with no complications than I have in bilious or intermittent fever. It used to be a terror to patients to tell them they had typhoid fever; not so now. A case in point: I discharged a young lady yesterday, Miss C. F., of one of the first families in the city. Her father was much alarmed when he found I told her she had typhoid fever. He asked me why I told her. I said because she is intelligent and has confidence in her physician. I told her that her temperature was $104\frac{3}{4}$, that I was using Dr. Woodbridge's abortive treatment of the fever, and that in two weeks her temperature would be $98\frac{1}{2}$. On the fourteenth day she asked to see the thermometer; said she, "$98\frac{1}{2}$ exactly." She further said I am now not afraid of typhoid fever. I told her she could commence solid food gradually and that she had no further need of my services. This case is a fair sample of those treated by me this fall. I am not writing this to flatter Dr. Woodbridge, but to encourage my professional brethren who have not tried it, to do so at once. The question has been freqently asked me by my professional brethren how I had succeeded. I say up to and beyond my expectation. I find it much easier to handle typhoid fever now than forty years ago. Dr. Mitchell was coming in the right direction with his fungi, but he slept with his fathers ere he had formed the acquaintance of Drs. Pasteur, Koch, and others, or had seen or heard of microbes or bacteria. A number of years ago I found that the temperature in typhoid fever could be controlled and the fever shortened about two weeks with salicylic acid and carbonate of ammonia in solution. I was not aware at the time that I was treating the disease scientifically by sterilizing the alimentary canal. I now see and know that is the secret of Dr. Woodbridge's Abortive Treatment of Typhoid Fever. It is no fad or secret quack remedy, but a scientific and successful treatment. None of us are too old to learn and none of us should be too prejudiced to adopt any treatment that has been shown to relieve suffering and save life.

E. J. MCCOLLUM, M.D.

Some Curious Proper Names.

CHICAGO AS AN ANATOMIC AND PHYSIOLOGIC ENTITY.

CHICAGO, Jan. 1896.

To the Editor:—Some time ago while looking through the 1894 Chicago Directory for the residence of a slow-paying patient we became impressed with the remarkable number of anatomic and physiologic terms made use of by the Human family to distinguish each other, and the idea occurred to us of Making Man in a Shape, Size, Weight and Motion similar to ours from the parts thus obtained. It will be observed that it required no inventive Genius, for the process was purely synthetic. With a Model before us and not being limited to Dust or Mudd, we took a Bone, and then finding any number of Bones, we decided upon having a Full compliment of Ribbe's rather than leave a Ribout. Having thus obtained a Skeleton our next step was to add Joints and Marrow. Looking about us we were Fortunate in finding Brain, Lung, Heart, Liver, Bile, Gall, Stomach, Bowel or Gut and Kidney. Having placed them Each in their Proper Place, we discover that we are slightly handicapped in being Able only to obtain a Vein for the Blood and Kyle. Nothing daunted, however, we Seize what Musil, Flesh and Hyde we can Lay Hold upon and Start at the Pate. Having Given our Friend a a Noble Brow and a Broadhead we hesitate whether he should have Hair or Remaine Bald. Finding but one Ey is a cause of Grief, yet with Earee's sufficient there is consolation.

Next Comes the Nose, no restriction as to Style, Hence we make it Roman, adding the Jaus, Chin and Cheek, next the Mouthe and Lips, not forgetting the Tongue or Gums. We can find no teeth, but rejoice in being thus permitted to dispose of a possible Toothaker. So Much for the Head. Now for the Body or Trunk. With a Back, Bussom, Bottom, Belle and Navel in position we make our image High-Breasted, supplying the Arms and adding a Hand with its Palm, Thumb, Finger, Knuckles and Nails it makes a respectable looking Fist. Turning our attention to the extremities which we Lack, we Have in Stock Hip, Legg, Knees, Shin, Shank, Ankel and Foot; also some Corns. As to sex we have our Choice, having Both Penas and Overy. As to Agee, a Baby Boy or Girl, or it may Grow into estate as a Youngman or Maiden, Gentleman or Lady, Damsel or Dame. This Person may be Lean, Lank, Long and Lively, or Stubby, Short, Thick, Fat and Slick. Having fashioned it we set it upright and observe it Wants a Soul with which we endow it. We call it a Gent, Give him a Beard and Clothes and now having Breathed easier, we Hear and See him Speak, Stammer and Read. After a Cough he begins to Chat, Telling us of a Cramp after which he felt a Little Pewki, this was followed by a Severe Chill, during which he thought he would Freeze, but soon came a Fever and Sweat.

He tells of a Boil which was some time in Healing and was very Sore, but is now disposed to Heal, but it will leave a Scarr. He is given a Dose of Pils and we leave him in Peace and Comfort, expecting them to effect a Cure. If he again becomes Ill and should Croak, giving up the Gost under the care of another Doctor, we have a Coffin in which to Bury him and also a Grave, and can thus obtain his Korps and have him Cutup into the pieces from which he was Made.

All the words capitalized I found in the 1894 Chicago Directory. G. H. S.

An Alleged "Health University."

MILWAUKEE, WIS., Dec. 27, 1895.

To the Editor:—The inclosed advertisement appears daily in the *Milwaukee Sentinel*. Is anything known of this institution in Chicago? Sincerely Yours, JNO. MADDIN.

PERSONAL.—How to become lawful physicians. Course by mail. Illinois Health University, Chicago.

ANSWER.—The Illinois attorney-general has filed in the circuit court an information against the "Illinois Health University" of Chicago. The charges are that the "University" confers the M.D. degree without personal examination of applicants from the States of Ohio, Indiana, Michigan, Wisconsin, Idaho and Kansas, and such other States as do not require the diploma of a reputable medical college, or an examination before a State board of health. The court is informed that the school is conducted on the "correspondence" basis.

PUBLIC HEALTH.

Beriberi from Punta Arenas. The American bark, *Herbert Black*, left Punta Arenas, Chili, on July 20, with several of the crew slightly ill. All hands except the captain and three others were down with beriberi early in November. Barbadoes was then the nearest port, and the captain laid his course thither. He arrived on November 22. Nine men were sent to a hospital, where four of them died. The *Black* shipped a new crew and sailed on December 1, arriving at New York harbor December 21. The skipper says that on a trip from Punta Arenas two years ago nearly all of his crew became ill of beriberi. He says that the crews of nearly all sailing vessels taking cargo at Punta Arenas suffer more or less from this disease.

Indiana Board of Health. The Indiana State board of health January 3 announced stringent rules in regard to the introduction of infectious diseases into the State, and the notice is accompanied by the statement that the rules will be rigidly enforced. They provide that any common carrier or person bringing any sick person or persons suspected of being sick with smallpox, diphtheria, membraneous croup, scarlet fever, or any communicable disease, shall be liable to certain penalties and the corporations or persons so offending shall also be liable for the charges incident to the care of such sick persons by the local health authorities. It is made the duty of the conductor of a train or the master of a steamboat to notify by telegram the secretary of the board of health of the presence of such sick person on his train or vessel, in order that suitable provision may be made for preventing the spread of the disease, and all trains and vessels coming to Indiana from any point where communicable diseases obtain shall be subject to inspection by the local health officer and the charges of such inspection shall be a valid claim against the corporation. The shipment of any one dying of membraneous croup shall not be granted, and no permit shall be issued for the shipment of a body having died of "heart failure" unless the cause of heart failure is stated.

Unstable Sterilized Milk. The workers at the Pasteur Institute are still engaged in the study of the ferments of milk. According to *Public Health*, for November, in a recent number of the *Annales de l'Institut Pasteur*, Dr. E. Ducleaux makes an exhaustive examination of the objections against the use of sterilized milk made by Flugge. The latter has stated that the liquid often sold in flask as sterilized milk contains a liquid which has become materially changed. In order to understand how this change is brought about, it is necessary to review the action of ferments on casein. It is well known that ordinarily the formation of lactic acid from sugar precedes the coagulation of casein in milk by a special ferment. Pasteur first showed that milk may coagulate under the influence of ferments in a neutral medium. The ferments of casein secrete a second diastase antagonistic to the first, which reduces the coagulum formed by the former. Then the coagulum again becomes liquid, and the passing coagulum may have been overlooked; this transformation although hidden is very great. In milk, casein, we know, is not in solution, but in suspension, forming with the serum a stable emulsion, of which the elements are fine enough to pass through filterpaper, but too gross

to pass through porcelain. When the second diastase has acted, the albuminoid matter is completely dissolved. Furthermore, a portion has been decomposed into the intermediary products which lead on to leucin, etc. The hygienic question in connection with milk is the determination of the microbes causing it to produce infantile diarrhea. It is notorious that such diarrhea is diminished, or even prevented, by the use of boiled milk. Is it the ferments of lactose, or those of casein which are inimical? Dr. Ducleaux thinks it is the former—among other reasons,—because experience shows that it suffices to render milk harmless (so far as diarrhea is concerned) for ingestion to Pasteurize it, *i.e.*, to heat it 70 to 75 degrees, a temperature at which the lactic ferments are killed, but which the ferments of casein and bacilli resist.

Compulsory Cleanliness for the Homeless in New York.—At a meeting of the new Department of Public Charities, New York city, amid the whirl of Christmas-tide, a salary or so was raised, and a few more nurses allowed. Also Commissioner Faure in a matter-of-fact way favored the establishment of a float alongside the pier at East Twenty-sixth Street, as a tramps' lodging house. Here he proposes to house all the tramps of the city, thus relieving the police station houses. The motto of the place he said, would be "No bath, no bed." Each day the lodgers of the night before would be taken to the Island, and they would be kept there three days until their cases could be investigated. Then the regular vagrants would be sent to the workhouse, and the deserving ones sent to their friends. It will be hard indeed, in these days of popular rights, to tell whether or not the lay press might not stigmatize the project as a gross outrage, familiar as they have become with the buncombe speeches of damage-suit lawyers and of a bench drawn from the same element. As for our Western tramp, not so much the product of a motley over-dense population, he is more cleanly and being more submissive to the advances of civilization has long since, in the words of Emerson "Converted an experiment into a sacrament." As we take it, a bath to some temperaments must be much worse than "sawing wood and saying nothing," although the people so far have seemed to view the matter with indifference. The organ of the reformers should no longer separate the bath-master from the Ambulance-Surgeon whose blunders come to us from the cities of the far East. The tramp, as a rule, is a mild mannered man attempting to anticipate his millenium, whose virtues should exempt him from the hardships of soap and water. To sum up the situation we must deplore the advent of a new party since the Constitution impliedly guarantees the right of every man to go to bed unwashed, and if needs be, with his boots on. Besides too, we can not refrain from depriving the drama of so picturesque a character as a tramp, even though he begs more beds than he really needs. In fact the insidious encroachments of tyranny must be resisted, even though it comes to us in the trappings of sanitary reform. No citizen is obliged to submit to a clean skin any more than to a free vaccination.

Health Reports.—The following health reports have been received in the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Ohio: Martin's Ferry, Dec. 1 to 28, 139 cases, 3 deaths.
Michigan: Detroit, Dec. 21 to 28, smallpox reported.
Tennessee: Memphis, Dec. 14 to 31, 22 cases.

SMALLPOX—FOREIGN.

Batoum, Dec. 3 to 10, 1 death.
Cairo, Nov. 26 to Dec. 2, 1 death.
Havana, Dec. 19 to 26, 1 death.
Glasgow, Dec. 14 to 21, 3 deaths.
Madras, Nov. 16 to 22, 1 death.
Madrid, Dec. 10 to 17, 9 deaths.
Montevideo, Nov. 23 to 30, 9 cases.
Naples, Dec. 11 to 18, 4 cases, 4 deaths.
Nogales, Mex., Dec. 21 to 28, 1 death.
Odessa, Dec. 7 to 14, 10 cases, 1 death.
Rotterdam, Dec. 14 to 21, 4 cases.
St. Petersburg, Dec. 7 to 14, 12 cases, 4 deaths.
Tuxpan, Dec. 14 to 21, 1 death.

CHOLERA—FOREIGN.

Bombay, Nov. 27 to Dec. 10, 6 deaths.
Calcutta, Nov. 16 to 30, 118 deaths.
St. Petersburg, Dec. 7 to 14, 78 cases, 43 deaths.
Yokohoma, Dec. 19 to 26, 5 cases, 2 deaths.

YELLOW FEVER—FOREIGN.

Havana, Dec. 19 to 26, 5 cases, 2 deaths.
Sagua la Grande, Dec. 14 to 21, 23 cases, 3 deaths.
San Juan de Puerto Rico, Nov. 29 to Dec. 20, 63 cases, 2 deaths.

BOOK NOTICES.

An Atlas of Ophthalmoscopy, With an Introduction to the Use of the Ophthalmoscope. By DR. O. HAAB, Professor of Ophthalmology, University of Zurich. Translated and edited by ERNEST CLARKE, M.D., B.S. (Lond.), Fellow of the Royal College of Surgeons, etc. New York: William Wood & Co. 1895.

This is the first of a series of five medical atlases William Wood & Co. propose to publish and to sell by subscription at $15 for the set. If the present volume can be taken as a standard for the whole series, the subscribers will get five excellent and useful works at an astonishingly low price.

This atlas contains in sixty-four colored plates ninety eight ophthalmoscopic pictures with descriptive text, and a good short introductory lecture on the ophthalmoscope and its uses. All these pictures were carefully sketched from nature by an expert ophthalmoscopist (Professor Haab) and skillfully reproduced in excellent chromo-lithography.

The collection comprises seven pictures of the various appearances of the normal fundus, eight pictures of congenital malformations, fourteen pictures of diseases of the optic nerve, fifty pictures of the diseases of the retina, and nineteen of the diseases of the choroid. No word paintings, however artistic, could give the student of ophthalmoscopy an adequate idea of the appearance of the eye-ground in health and disease as vividly and accurately as these beautiful drawings.

That the book is not a large cumbersome volume—as the word "atlas" might suggest—but of the very convenient small octavo size, and that the descriptive text for each plate is printed on the page facing it, are two points showing the excellent judgment of the publishers of what is needed to make a book convenient for ready use and reference.

Spectacles and Eyeglasses, their Forms, Mounting and Adjustment. By R. J. PHILLIPS, M.D., Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic and College of Graduates in Medicine, etc. Second edition, revised. Philadelphia: P. Blakiston, Son & Co. 1895.

This little book gives in its hundred pages a wealth of information which is not found in our text-books on ophthalmology, but which is indispensable to every oculist and physician who wants to become an expert in the fitting of spectacles and eyeglasses. And what makes the book particularly commendable is its simple, comprehensive language, free from the scientific jargon which renders many ophthalmologic books so distasteful and indigestible to students.

The New York County Medical Association. We have received a copy of the annual handbook or register of this large society for the year 1895-6. It is a well-printed and well-bound book of 176 pages, and contains a large quantum of useful professional information, beside the regular personal lists. It is illustrated by a fairly good portrait of the late Dr. William Detmold, the first President, in 1884, of the now great local organization of over one thousand in membership who have not bowed the knee to the Baal of the agnostic banner of the old State Society of New York.

Literary Announcements.

The *Popular Science Monthly*, now in its thirtieth year, has added new departments on Invention and Electricity, and the number of pages have been doubled. These signs of prosperity are indeed rather gratifying to all friends of popular education.

In our notice of the volume of Medico-Chirurgical Transactions of London, on page 824 of our last volume, it was stated that most of these papers had been published elsewhere. This was an error, as the papers printed in these Transactions are not allowed to be elsewhere printed. Gentlemen desiring to read these papers will therefore have to purchase the Transactions.

ASSOCIATION NEWS.

Celebration of the Centennial Anniversary of the Discovery of the Protective Power of Vaccine Virus by Dr. Edward Jenner, 1796.

The committee appointed by the American Medical Association and the auxiliary committee appointed by the American Public Health Association to prepare a proper program for this centennial, propose the following order of proceedings designed to occupy one entire day of the annual meeting of the American Medical Association to be held in Atlanta, Ga., May 5 to 8, 1896:

Thursday, Third Day of the Meeting.

Morning Session.—Address on "The Character of Dr. Edward Jenner and the History of his Discovery of the Value of Vaccination," by Dr. N. S. Davis, Chicago, followed by discussion on the history and status of vaccination in this country.

Afternoon Session.—Paper on "The Scientific Researches Relating to the Specific Infectious Agent of Smallpox, and the Production of Artificial Immunity in this Disease," by Dr. George M. Sternberg, Surgeon-General U. S. A. Also paper on "The Propagation, Preservation and Use of Vaccine Virus," by Dr. Francis C. Martin, Boston, Mass. Discussion, especially on the scientific principles involved in the papers.

Evening Session.—Paper on "The Statistic Evidences of the Value of Vaccination to the Human Race," by Dr. Eugene Foster, Augusta, Ga. Discussion as far as time will permit.

committees.

Of American Medical Association: Drs. N. S. Davis, Chicago, Ill.; J. M. Toner, Washington, D. C.; H. D. Didama, Syracuse, N. Y.; J. F. Hibberd, Richmond, Ind.; J. S. Billings, Philadelphia, Pa.

Of American Public Health Association: Drs. T. George Simons, Charleston, S. C.; C. A. Lindsley, New Haven, Conn.; Angel Contreras, Pueblo, Mexico; J. M. Toner, Washington, D. C.; N. S. Davis, Chicago, Ill.

Jan. 4, 1896.

SOCIETY NEWS.

XII Congres International de Medecine.—Sous l'auguste patronage de Son Altesse Impériale le Grand Duc Serge Alexandrovitch. Moscou, 19–26 août 1897. Comité Exécutif: Président, Prof. I. F. Klein: Vice-Président, Prof. A. J. Kojewnikow: Trésorier, Prof. N. F. Filatow: Sécrétaire Général, Prof. F. F. Erismann; Secrétaires, Prof. P. I. Diakonow, Prof. W. A. Tikhomirow, Prof. I. I. Neyding; Membres, Prof. A. A. Ostroumow, Prof. S. S. Korsakow.

Communication—In accordance with the august approval of His Imperial Majesty the Emperor of Russia the XII International Medical Congress will be held in Moscow between the 19 and 26 of August (new style) in the year 1897, under the Patronage of His Imperial Highness the Grand Duke Serge Alexandrovitch. Further details about the organization of the Congress will be published at as early a date as possible.

Secretary General, Prof. F. Erismann, M.D.

We shall publish the rules next week.

NECROLOGY.

James E. Reeves, M.D., of Chattanooga, Tenn., Jan. 4. He was born in Amissville, Rappahannock County, Va., in 1829. He was one of the founders of the American Public Health Association, and was president of that body in 1885. He removed from Wheeling, W. Va., to Chattanooga some years since. As a sanitary authority he was able and conservative. He was distinguished as a microscopist, and before the days of bacteriology he was a skilled manipulator; his mounted specimens were beautiful and much sought after. He was an inventor of many useful methods and recently wrote a small book, reviewed in this Journal, which contained much valuable information on this subject. He was a valiant and uncompromising upholder of the code of ethics of the American Medical Association, and while not long a member of the Board of Trustees, his influence was always thrown strongly in favor of measures for the exclusion of objectionable advertisements from the columns of the Journal. He was an active and useful member, and his death is deeply regretted by the remaining members of the Board.

Frank Putnam Buffum, M.D., of Chicago, January 6.——J. M. Taylor, M.D., of Corinth, Miss., December 28. He was born in Jackson County, Ga., in 1826. He was twice chosen President of the Mississippi State Medical Association, and served for many years as a member of the State Board of Health.——Thomas S. Powell, M.D., of Atlanta, Ga., December 30, aged 70. He was born in Brunswick County, Virginia, in the year 1826. In 1864, shortly after the war, he went to Georgia, locating in Sparta, where he commenced the practice of his profession. In 1878, Dr. Powell moved to Atlanta and has been identified with the practice of medicine ever since. He was noted for his great charity and his kindly feeling toward the poor. Dr. Powell's greatest professional accomplishment was the founding of the Southern Medical College, of which he was President up to his death.——William Compton, M.D., of Lancaster, Pa., December 13, aged 70.——V. R. Bridges, M.D., of Mattoon, Ill., December 20.——E. J. Alter, M.D., of Aspinwall, Pa., December 15, aged 32.——A. C. Peters, M.D., of Iowa City, Ia., December 18, aged 34.——E. Francisco, M.D., of Parsons, Kan., December 18, aged 84.——M. B. Folwell, M.D., of Buffalo, N. Y., December 10, aged 54.

MISCELLANY.

Dr. E. L. B. Godfrey, of Camden, has been elected Secretary of the State Board of Medical Examiners of New Jersey, in place of Dr. Wm. Perry Watson, of Jersey City, who resigned to accept the position of Medical Supervisor of the Prudential Insurance Company at Newark.

A Poorhouse and Insane Asylum Burned. The Jefferson County poorhouse and the asylum for the insane near Fairfield, Iowa, were both destroyed by fire January 8. There were over thirty inmates in the two buildings but all were rescued without loss of life. The loss is estimated at $10,000. Insurance $4,000.

Appointments.—Dr. George Dock, at present Professor of Practice of Medicine and Pathology in the University of Michigan, Ann Arbor, has been elected Professor of Pathology and Bacteriology in the Jefferson Medical College.

Professor Daniel R. Brower of Chicago, has been appointed a member of the Illinois State Board of Health, *vice* Dr. George Thilo resigned.

A Condensed Code Dating from the 14th Century.—Guy de Chauliac, French surgeon, author and teacher, was the chaplain and physician-in-chif for Urban V and two other popes of Avignon. He was educated at the universities of Bologna and Montpellier and a long while a practitioner at Lyons. He was born about the year 1300. He inculcated the following embryo code of ethics:

"Bold when sure. Cautious in danger. Kind to the weak and sick. Friendly with fellow-workers. Constant in duty. Not greedy of gain."

College Library.—The library of the College of Physicians and Surgeons of Chicago has received 1,378 bound volumes since the first request was made for donations of books six months ago. These books have all been accessioned and nearly all catalogued and thus made available to students. There are a great many pamphlets, unbound books and unbound periodicals not included in this list. The more important American and a few European medical serials are represented by complete sets. This library is open only half the day at present, and yet the number of readers is increasing steadily. The librarian would be glad to receive further donations and solicits correspondence with that end in view. The duplicates will be exchanged with any library in need of them.

Blind-fold Practice. Sir Edwin Arnold, in his introductory address at St. Thomas' Hospital, London, on "Medicine; its past and future," after a reference to the customs of that benighted land which absolutely forbids the high caste Indian ladies availing themselves of male European skill says, "I was dining once in Jeyhore at the table of Surgeon-Major Hendley, the able and trusted friend of the Maharajah, when a message came that the chief Queen had been taken ill and begged the advice of the British hakim. He went and on return told us that although for seventeen years a familiar visitor of the palace, and the private advisor of the Rajpoot Prince, he had been obliged to suffer his head to be enveloped in a silken bag, and so equipped had been led into the zenana, where he had felt the pulse of her Highness, and had examined her with the stethoscope without seeing an atom more of his patient than a glimpse of one jewelled slipper through the strings of the bag." This would seem to open up a good field for blind practitioners of the male sex, as well as for female doctors, and many of the latter have made a marked and rapid success of it, by locating in those Oriental cities where males are not wanted in the zenanas.

A Long-Haired Colored Woman.—In *Leslie's Weekly* for January 2, there appears an account, with an illustration of the "only living long-haired negress," named Nancy Garrison, a resident of Holly Springs, Miss. She is a true negro, black and with kinky hair; and her age is 48 years. When she was thirty years old a change took place in her hair, subsequent to an attack of fever. "Until 1878, after the yellow fever epidemic, there was nothing remarkable about Nancy, but during the scourge she had the fever and came near dying. It was months before she was able to leave her house. Immediately after her convalescence her short, kinky hair began to grow rapidly; in a year's time it grew from three inches to three feet in length, thickening as it grew. A few years later and the crispy mass of hair fell below her knees. About this time a wonderful change of color took place; the jetty locks turned white as snow and remained so until two years ago; since then the hair has gradually turned to its natural blackness. It continues to grow and now measures eleven feet. Prominent physicians have examined her head and hair and are disposed to think that the spell of fever produced the unnatural growth. Nancy is a living curiosity, visited by hundreds who handle her massive braids before they believe the truth."

The Hospital Hotel.—The pay-wards of the hospitals of New York city are getting to be more freely used by the well-to-do classes, especially by the males, and still more especially by those who need to undergo surgical treatment. According to *Polyclinic*, even millionaires, having their own luxurious private homes, find in the hospital surroundings that are more favorable for a prompt and sure recovery than they can get elsewhere. Not only is this true where surgery is involved, but in many cases where medical treatment alone is necessary. Cases of typhoid fever are well represented among many other ailments, and occasionally, though not often, a consumptive, even, will decide to end his days amid the peace and quiet of the "hospital hotel." Wealthy patients, who may choose and pay for anything that their fancy dictates, are beginning to appreciate very decidedly the advantages of becoming private patients in any of our best hospitals.

Trained nurses may be secured now at short notice at home it is true (two are necessary, alternately relieving each other) but aside from this, both physician and patient have discovered that during a case of dangerous illness, or in recovering after on operation, the perfect quiet and routine of the hospital régime are more desirable than being surrounded by home and friends or any amount of luxury. The benefit, it appears, lies chiefly in being removed from the every-day, familiar scenes, where every object is apt to remind the invalid of some duty undone or some mountain ahead. It is a species of "rest cure." There seems to be a dreamy, drowsy atmosphere about a hospital patient's existence which is very soothing to invalid nerves. They have a vague idea, to be sure, that it is all very tedious, and that they are not keeping up with the procession properly at all, but it is only a shadowy impression. Then there is every possible patent contrivance at hand in a hospital, and there is always the house surgeon to be summoned at any minute, should the patient so desire.

The private rooms vary in price, ranging from $25 to $60 a week, including board and nursing. An hour's time where a great surgeon is employed, is apt to mean a few extra hundred, possibly an extra thousand or more. The rooms are plainly but tastefully furnished, draperies of any kind being rigidly excluded. Draperies encourage microbes. Aside from the suffering involved, there are many pleasant memories connected with a few week's stay. There comes a time when the pains and aches are a thing of the past, and then the patient relapses into that delightful, dreamy, dolce far niente existence called getting one's strength back. There is a feeling of abject dependence upon the white-capped nurse: no returning nightmare of duties undone is suggested in this peaceful spot, and really the only effort demanded of one is to select a small list of delicacies for the next meal.

The nurses are, almost without exception, well bred, well educated specimens of womanhood. This profession requires considerable tact and although beauty is not absolutely required, there are many of the hospital nurses who have rather more than their share. They are highly appreciated, as a rule, and many enduring attachments are formed between patient and nurse.

Essentials to Recovery from Druggist for Giving Injurious Medicine.—Several fundamental principles of importance are established by the Supreme Court of Iowa in the case of Rabe vs. Sommerbeck, where it, on May 21, 1895, reversed a judgment for the plaintiff. This was an action brought against a druggist for damages resulting from alleged negligence in giving the plaintiff injurious medicine. First of all, the court holds that in an action of this character the plaintiff must aver and prove a want of negligence on his part contributing to the injury complained of. It says that this, in the application of the rule, is much like the case of Baird vs. Morford (29 Iowa, 531), where the negligence complained of was in reducing a dislocated shoulder joint, and where it was distinctly laid down that "a party claiming to recover for the negligent or unskillful acts of another must show him to be in the wrong, and also prove, i

issue thereon is made, that no negligence of his own caused the injury." The opportunities for contributory negligence in the two cases are much the same. At the particular time of treatment, in each case, there seems to be but slight opportunity for such negligence, but still there is some. In both cases, after the treatment, there is a demand for reasonable care, and a want of it may become contributory negligence. In the second place, the court holds that the jury should have been instructed: "If you find from the evidence that croton oil was by defendant administered to plaintiff in dangerous quantity, as is alleged, then you will consider whether or not it was the proximate cause of plaintiff's sickness and injury, as alleged; and if you find that it was not the proximate cause thereof, or if the plaintiff was sick at the time of administering the croton oil, if any was administered, and the same did not increase the sickness or pain, or the duration thereof, then you should find for the defendant." The plaintiff was sick when he went for the medicine, and whether or not it was the drug administered that caused the sickness and suffering that followed, the court explains, was a very important fact in the case. True, the instructions which were given only permitted a recovery if the drug administered caused the injury; yet there was nothing in them to call the minds of the jury to the importance of distinguishing between these two facts, either of which might have been the cause of the suffering and the condition complained of. The court also says that the symptoms of the plaintiff after taking the drug are proper in determining its character, and also that, with the proper foundation, expert evidence is competent for that purpose. If the facts having support in the evidence are stated hypothetically to the expert, it is proper for him to state the conclusion whether or not croton oil, or any drug which is a subject of injury, would produce such symptoms or results.

Practical Notes.

The Gouty Nature of Persistent Hiccough.—The *Lancet* for October 26 has some remarks on the above subject by Dr. John Roche. Rheumatic gout is a frequent cause in those cases where no lesion of the cerebrum exists. Salicin in thirty-grain doses three times a day will effect a cure in four days or less, if my surmise be correct. If the case should be due to centric nervous system derangement producing an erythematous condition of the nasal, pharyngeal and gastric mucous tracts of an intermittent nature small doses of arsenic, nux vomica and iron three times a day, with milk and lime water night and morning, will be the remedy. He has known the case of a gentleman affected with sneezing which suddenly attacked him after intervals of a few weeks, and lasted day and night continually. He has known a case where hiccough, sneezing and laryngeal asthma were periodic visitants. Arsenic and tonics relieved the first; salicin cured the second.

Trephining for Chronic Hydrocephalus; Recovery.—A case of Mr. William Thelwall Thomas is reported in the *Lancet*, of a young man, aged 19 years, who was subjected to the operation of trephining about six months previous. The history of the case showed a very severe and progressive headache, generally occipital, for eighteen months, extreme giddiness and ataxia, with falling to the right side. There were nystagmus, diplopia, paralysis of the right superior oblique, and marked double optic neuritis. The circumference of the head was 25 inches. The right cerebellar fossa was opened and the tense, non-pulsating dura mater bulged; this was opened and then the brain bulged. By exploring with the finger no tumor could be made out, but the space under the cerebellum was closed by a membrane; this was easily broken through with the finger, and a quantity of clear fluid liberated. The medulla and floor of the fourth ventricle were distinctly felt. The bone was not replaced. The headache soon disappeared, and the man quickly regained all his faculties and is now apparently quite well, six months having elapsed since the operation. Dr. Glynn, when he suggested the performance of this operation to Mr. Thomas, thought the case was one of cerebellar tumor. The patient was nearly blind at the time of the operation. It was remarkable that it should not only have been followed by temporary relief, but also by permanent recovery. It was possible that a posterior meningitis had been followed by adhesions between the membranes in the neighborhood of the fourth ventricle, and had in this manner caused chronic hydrocephalus.

On the Irrigation of Pus-Joints.—In the *Bulletin* of the Johns Hopkins Hospital, the treatment of pyarthrosis is reported upon by Dr. Finney, the operation being that of a free incision and an abundant irrigation with a bichlorid solution. One of his cases was a young man aged 17, who was admitted to the hospital August 8, under Dr. Bloodgood's care. Early in June he had a pain in his left knee, which was followed by some swelling and tenderness and slight pain on motion. He was unable to walk with comfort for about a week; after that it gave no further trouble. This was clearly a case of synovitis. Two days before admission to the hospital, while playing baseball, he fell and injured the same knee. This was followed by rapid swelling, great pain and tenderness. On admission his temperature was 104 degrees; pulse, 120; face flushed. The left knee was contracted almost to a right angle; it was most comfortable in this position, resting on the outer side. The joint was much swollen, with the patella floating. There was considerable fixation, due to the muscular spasm; some redness about the joint, and it was extremely tender. The joint was first aspirated and a cloudy fluid withdrawn. Later it was incised in the manner about to be described. This method is the point of especial interest to us. It was suggested by Dr. Halsted because of the uniformly unsatisfactory results of the old method, which was by inspiration or incision, followed always by the insertion of drainage tubes. The final result of that operation was, in the most favorable cases, a stiff knee. In many there was a resection of the joint later, and in a large proportion of cases an amputation of the leg. The operation done in this case was, after applying a tourniquet to the thigh, to make a long incision into the joint on either side of the patella, through which the joint was irrigated with several gallons of 1 to 1000 bichlorid solution. Then the tourniquet was removed, the wounds covered with protective and treated in the ordinary way. There is little to be seen now except two parallel granulating wounds. He has been recently anesthetized and the fibrous adhesions which had formed broken up. Dr. Welch discussed the bacterial side of the case briefly. He said that this procedure of opening and irrigating pus joints is interesting in reference to the question of disinfecting surfaces of the body. There has been a good deal of experimental work done by Schimmelbusch and others, with the object of ascertaining whether it is possible to disinfect an infected surface or to prevent infection. Dr. Williams has made some observations here with reference to that point in cases of streptococcus infection of the endometrium. He has shown that the microorganisms are so deep that one can not possibly think of the disinfectant reaching them. While there appears to be no doubt of the superior efficacy of irrigation with disinfectant solutions, as opposed to simple salt solutions, the grounds for this are not altogether apparent, as experiment show that these disinfectants do not actually kill all of the organisms even on exposed surfaces, and do not reach those in the depth of the tissues. Of course these remarks relate only to the possible theories or explanations of the process of cure and are not a criticism of the efficacy of the procedure, which is determined only by experience.

Paracentesis of the Spinal Sheath.—According to the London *Lancet*, Quincke, of Kiel, is among the first, if not the first, to practice puncture of the spinal sheath in cases of cerebro-spinal meningitis, whether tuberculous in origin or not. This expedient has not been much practiced elsewhere, and in some cases has not been followed by permanent results. It is obvious that if it is to be of use in tuberculous meningitis the case must be one in which no other region or organ is the seat of miliary tubercle, and that may explain the fact of failure to insure recovery even after a marked improvement as regards

the cerebral symptoms, such as disappearance of coma has followed the lumbar puncture and drainage. He affixes a manometer to the trocar and thus measures the degree of pressure within the canal. Failure to secure a flow of fluid is to be attributed to imperfect performance of the puncture, *e. g.*, the passage of the needle between the nerve-roots outside the sheath, or the presence of thick pus which will not flow through a too fine needle. He is convinced of the therapeutic value of the plan especially in rapidly developing forms of acute serous and sero-purulent meningitis. The assistants at Dr. Quincke's clinic are now engaged in the preparation of a detailed report of his cases.

Dr. Von Ziemssen is quoted as to having said that he had seen ample confirmation of the reports as to the diagnostic and therapeutic value of the lumbar puncture since its introduction by Prof. Quincke. He himself had injected a weak solution of iodin into the canal by this means. He did not use a trocar, but Dieulafoy's needle. Sometimes the patient, shrinking at the moment of puncture, approximated the vertebræ and thus hindered the entrance of the needle, and he thought that anesthetics should be given in the case of adults. No reaction followed, and in some cases examined after death no trace of the puncture could be seen. Furbringer has reported to the Medical Society of Berlin that he has tapped the vertebral sheath in eighty-six cases, making the puncture over one hundred times. The puncture is made in the second, third or fourth intervertebral space in the lumbar part of the spine; the patient sitting up rather than lying on the side. The author states that anesthetics are unnecessary, and that aspiration is more painful than the puncture itself. The amount of fluid withdrawn varies from a few to 110 c.c. Out of thirty-seven cases of tubercular meningitis, of which twenty-seven were verified by autopsy, the tubercle bacillus was not found in seven cases. Of this 80 per cent. in which the diagnosis was established, there was a number of cases which could not be diagnosticated from the clinical symptoms. The therapeutic results were unsatisfactory. In three cases of serous meningitis there was a transient amelioration of the the symptoms. Dr. A. Frankel holds that the operation is harmless if done correctly. The puncture should be made about on the plane of the junction of the superior and middle thirds of a spinous process, about two fingers' breadth from the median line. After passing through the skin the needle should be directed slightly upward and inward, and it then enters the canal without difficulty. He failed to find tubercle bacilli in meningitis, notably those in which the arachnoid membrane was affected, and therefore the absence of tubercle is no proof that the disease does not exist. In the *Boston Medical and Surgical Journal* for December 12, Dr. T. M. Rotch reports a case observed by him at the Boston Children's Hospital, in a female aged 2 years, who had marked cerebral symptoms. "We punctured the spinal canal, using for the purpose a needle from an antitoxin syringe, and withdrew six cubic centimeters of a clear fluid which looked like destilled water. No tubercle bacilli were found in this fluid and only rarely a cell of any kind. The albumin was quantitated and found to be less than one-twentieth of 1 per cent. Cultures made from the fluid were negative. The child showed marked stupor at the time, and when aroused acted as if blind. Examination of the eyes showed them to be normal. There was an acute, double, sero-purulent otitis media; but although paracentesis was performed and the ears carefully treated, the symptoms persisted. These were moderate temperature of an irregular type; urine negative; persistent diarrhea, five to six movement daily, of a green color and more fluid than normal. Immediately after tapping the canal the child became restless, throwing herself about the bed, clutching at her hair and giving vent to short cries. The patient recovered and the diagnosis was never made. From the examination of the fluid withdrawn from the canal it was evident that there was no inflammatory exudation in it, which was of some value in diagnosis. Although it is not at all uncommon in infants and young children to have cerebral symptoms in cases of otitis media rather than local ones, still, after paracentesis has been performed it is usual for the symptoms to subside very quickly. In this case they persisted for more than a week afterward. If a moderate diarrhea can account for the symptoms in any way, whether toxic or not, it is a unique experience. The child had been ill for ten days, as nearly as we can find out, and remained for three weeks in much the same condition in the hospital. Recovery gradually occurred.

Society Notes.

THE MINNEHAHA MEDICAL SOCIETY, Sioux Falls, S. D., have considered a proposition from the medical society at Sioux City for the organization of a tri-State Medical association made up of the members of the fraternity in Northwestern Iowa, Southwestern Minnesota and Southeastern South Dakota. It is the plan to hold meetings of the proposed association quarterly for the discussion of questions of interest to the members.

Hospital Notes.

THE BOARD of Cook County Commissioners held the first meeting of the year January 6. Various reports were received and referred to the proper committees. That for the poorhouse showed the number of inmates on Dec. 1, 1895, to be 1,535, the number admitted during the month 400, and the number of births 2, making a total of 1,937. The discharged numbered 283 and the deaths 31, leaving an attendance at date of 1,623. The report of the Cook County Hospital showed the number of patients during the last month had averaged 801. Dr. E. C. Fortner was appointed County Physician for the year ending December, 1896.

Louisville Notes.

SOCIETIES.—The Clinical Society will be entertained January 11 by Dr. J. M. Krim, the title of his essay being "The Use of Forceps in Difficult Labor." Dr. Louis Frand will entertain the Surgical Society on the 13th, the title of his paper being "Strangulated Umbilical Hernia, with Report of Case." Dr. W. R. Blue entertained the Falls City Medical Society on January 1, reading a paper upon "Electricity in Dermatology and Genito-Urinary Diseases." The Louisville Academy of Medicine met in their rooms in the College of Pharmacy building on the 6th, Dr. Hugh N. Lavell reading the essay on "Chloroform Anesthesia."

DEATH REPORT.—The report of Health Officer White for the month ending January 3, shows a total of 293 deaths. The total number of deaths during the same period last year was 335. During the month pneumonia and consumption each caused forty-one deaths, eighteen died from organic heart disease, fourteeen from typhoid fever, and eleven from bronchitis. There were thirty-two stillbirths.

COLLEGES.—The Hospital College of Medicine began its regular session on January 2 with a large medical and dental class. The Kentucky School of Medicine began on January 3, with 210 matriculates. There is every indication of a prosperous year, both schools requiring three years' study for graduation. The 1897 term will inaugurate the four years course.

St. Louis Notes.

WEEKLY HEALTH REPORT.—Total number of deaths reported during the week ending December 28, 200, compared with 167 for the preceding week, and 135 for the corresponding period of 1894. Total number of births reported during the week, 231. For the week ending January 4, total number of deaths 180, compared with 146 for the corresponding period of 1895. Births reported, 310.

Contagious diseases reported during the week ending December 28: Diphtheria 94 cases, 13 deaths; typhoid fever 6 cases, 3 deaths; measles 16 cases; scarlatina 9 cases; whooping cough 14 cases, 1 death. For the week ending January 4: Diphtheria 83 cases, 12 deaths; croup 7 cases, 1 death; typhoid fever 9 cases, 2 deaths; cerebro-spinal fever 1 death; measles 12 cases.

The St. Louis Medical Society held its fifty-ninth annual meeting on the evening of December 28. Reports of the officers and committees of the year closed were submitted. The election of President, for the ensuing year resulted in the choice of Dr. W. G. Moore. At the meeting January 4, Dr. Moore assumed his office, and, after a short address announced the following committees: Ethics—Drs. F. D. Mooney, L. P. Pohlmann and Hall G. Tupper. Elections—Drs. J. P. Heinrich, John H. Duncan and John B. Shapleigh. Publication and Debate—Drs. G. M. Phillips, Chas. L. Wilson and F. C. Ameiss. Executive—Drs. Keating Bauduy, Given Campbell and C. M. Nicholson. Library—Drs. Ludwig Bremer, Wm. Johnson and S. Pollack.

Dr. L. Ch. Boisliniere, the venerable physician, lies critically ill at his home. Hopes are entertained of his recovery.

The Case of J. M. Beecher. On December 23, J. M. Beecher was brought before the probate court for an investigation of his mental condition. The point of peculiar interest was the circumstance that he had been confined in the city asylum more than two years as a patient, and had made every effort possible under the circumstances to prove his sanity and his right to liberty. He is possessed by the delusion that he is the head of a great detective agency and called to hunt down all enemies of society. Aside from his delusions he is acute and logical in all his mental activities, and it was deemed best by the authorities to have his actual status determined beyond all cavil. The remarkable feature of the case is that the jury had no hesitancy in declaring the patient to be insane, though as compared with the paranoiac, Dr. Duestrow, his mental irresponsibility is much less evident.

The Annual Meeting of the State Board of Health was held at Jefferson City, January 2. The routine business of the board was attended to. The matter of midwives in St. Louis advertising as physicians was discussed and a rule adopted prohibiting such signs from being publicly displayed. The following officers were elected for the ensuing year: Dr. F. J. Lutz, St. Louis, president; Dr. T. H. Hudson, Kansas City, vice-president; Dr. Willis P. King, Kansas City, secretary. The board adjourned to meet in St. Louis Monday, January 6, when the question of the necessary qualifications of students who enter medical colleges will be determined.

Detroit Notes.

The Detroit Medical and Library Association was entertained Monday, December 30, by Dr. Geo. Henry Fox of New York, who gave a lecture illustrated by stereoscopic views. The Doctor exhibited a great many original slides, the most of them being syphilitic lesions, others being smallpox, psoriasis, eczema, acne, lupus and lichen planus. The first was of a primary lesion, syphilis on the lower lip. It was characteristic and showed the lymphatic involvement along the angle of the jaw. The next few slides were of secondary syphilis, then came one of erythematous syphilid which the speaker dwelt upon for a few moments and brought out the point that the case was one of recurrent; then a slide or two of papular syphilid. The Doctor took occasion to remark that there were no cases of syphilis that were not vesicular, and syphilitic lesions do not itch. Here was shown a very nice case of alopecia of the early second stage, then several slides of smallpox and chickenpox; these were in the umbilicated stage and showed the depressions very nicely. The next was a case of psoriasis. The Doctor then remarked that in syphilis we have considerable infiltration of the skin, but in psoriasis the opposite is the rule. His case of lichen planus was a beautiful case; the color and the papules showed very nicely. His cases of acne were very characteristic, being one of punctate, one of sebaceous and one of molluscum; and the remark was made that of 100 men that were taken at random and their chests and backs examined, 80 per cent. of them would be found afflicted with this trouble. In those of scabies and phtheiriasis the diagnosis was made in the latter case by the parallel lines made with the finger nails of the patient seeking relief, and the lecturer said that the latter disease was much more contagious than the former. In returning to syphilis, he said, we have four varieties, squamous, papulosus, pustulosus and macular. As to skin lesions in syphilis the further away from the stage of incubation that the eruption appears the more likely are we to find a grouping of the lesions. A beautiful picture was shown of ring-worm, upon the outer edges of which was what appeared to be syphilitic lesion. This was confirmed by examining the patient's mouth when the lecturer made his ultimate diagnosis. A case presenting Hutchison's teeth was shown with accompanying secondary eruption; the next a late syphilis accompanied with papillomata of the vulva. The lenticular papular ulcer on the palm after the secondary lesion has disappeared is a positive means of diagnosing syphilis. The eruption in syphilis is generally unilateral, the further away from the primary lesion, especially after the first year. A case of tubercular or nodular syphilis was then shown. Then several cases of lupus were shown. In making the diagnosis between this disease and syphilis age should be taken into consideration as lupus begins generally before one has been exposed to syphilitic contagion, and lupus is a slow growing lesion, while syphilis in marked contrast spreads rapidly. Lupus, the speaker said, was not an incurable disease, but one that required a long time, months even years to cure, and its ravages knew no bounds. In showing some cases of eczema of the leg it was noted how syphilis affected the upper part of the leg and eczema the lower part. In showing his case of psoriasis he commented upon the fact that in this disease ulceration does not occur and that the healing generally is from the center. Here was shown a view of a hand, in the center of the palm of which were seen scaly patches. This, the Doctor said, was also characteristic of syphilitic lesions. In speaking of the treatment of syphilis, he said there was no disease so amenable to treatment, that the remedies were mercury and potassium iodid, and that he had found no better way of giving them than by the mouth, as he does not like inunctions. As illustrative proof of this, he showed a tubercular syphilid in which the tubercles were upon the upper lip and the end of nose, the eight or nine being as large as the last joint of one's thumb. This case had had the usual heroic treatment. He had taken the case, quit all treatment, insisted upon the patient's taking a good walk every day, regulated the diet, and was gratified in the short space of a fortnight by seeing marked improvement in his patient. Dr. Fox further said that he knew that his listeners understood that all cases of this kind need good food and air, but he brought this forward to emphasize the importance of diet and exercise.

Health Office Report for week ending Jan. 4, 1896. Deaths under 5 years 27, total 64. Births, male 55, female 54, total 109. Contagious diseases: Diphtheria, last report 34, new cases 16, recovered 22, died 5, now sick 23. Scarlet fever: Last report 22, new cases 7, recovered 9, died none, now sick 20. Smallpox: Last report 2, new cases 1, recovered 1, died none, now sick 2. Measles: Last report none, new cases 2, recovered none, died none, now sick 2.

Washington Notes.

Weekly Report of the Health Officer. The report of the Health Officer for the week ended December 28 shows the health of the city during the past week continued to average above the normal. The deaths numbered 107, and the annual death-rate was 20.2 per thousand inhabitants as against 22.6 in the corresponding period of last year. The principal features of the week's health history were the gradual rise in the prevalence of heart troubles from which there were eleven fatal cases, and from lung maladies causing thirty-four deaths. There were five deaths from typhoid fever as compared with four therefrom in the corresponding week of last December. Malarial diseases present no phase of importance, and with the exception of four deaths from diphtheria, the dangerous contagious ailments were in abeyance. The mortality among children under five years of age was forty-one, of which thirty were under one year old. The mortality among this class was mainly pneumonia and cognate lung maladies in connection with brain disorders, which are accountable for twenty-nine of these cases. A general review of the pathologic conditions justifies the con-

clusion drawn from the death list, that the health of the district is above the average.

BIOLOGICAL SOCIETY'S OFFICERS.—The Biological Society has elected the following officers for 1896: President, Surgeon-General George M. Sternberg, U. S. A.; Vice-Presidents, Richard Rathbun, C. D. Walcott, L. O. Howard, B. E. Fernow; Recording Secretary, M. B. Waite; Corresponding Secretary, F. A. Lucas; Treasurer, F. H. Knowlton; Members of Council, F. W. True, C. W. Stiles, W. H. Ashmead, F. V. Coville, and C. L. Pollard.

SELECT COMMITTEES OF THE SENATE APPOINTED.—The following are some of the Select Committees of the Senate appointed by the presiding officers:

Epidemic Diseases.—Vest, chairman; Harris, Irby, Jones (Nevada), Gallinger, Quay and Butler.

To Investigate the Condition of the Potomac River Front of Washington—George, chairman; Martin, Blanchard, Frye, Sherman and Perkins.

To Establish University of the United States—Kyle, chairman; Sherman, Hawley, Frye, Nelson, Jones (Arkansas), Turpie, Walthall and Mitchell (Wisconsin).

THE WOMAN'S CLINIC.—The quarterly meeting of the Woman's Clinic was held on the 4th inst., at the office of the Society. Reports of officers were read and other important business transacted; the report shows the work of the hospital to have largely increased.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—At the regular monthly meeting of the staff held on the 4th inst., the following report of its work done during the past month was read. Number of new cases 832; visits 2,250; emergency cases 197; redressings 358; ambulace cases 42; prescriptions compounded 3,508; deaths 2; post-mortem examinations 2. A great deal of the work done was for the relief of serious accidents and included abdominal and brain surgery.

TO PRACTICE IN NEW ORLEANS.—Dr. Meyer Herman of this city, formerly one of the assistants at the Emergency Hospital, has gone to New Orleans, La., to begin practice there. Dr. Herman left a large and lucrative practice and a host of friends.

PHYSICIAN VS. PATIENT.—Dr. H. L. E. Johnson has entered suit in the Circuit Court here to recover fees amounting to $250 for professional services.

A PATIENT THREATENS DAMAGE SUIT.—A patient of a prominent physician here is on the verge of entering a suit for $10,000 damages. The patient claims to have been injured permanently by the performance of an injudicious abdominal section. It is understood that a compromise is to be effected if possible.

THE POST-GRADUATE SCHOOL OF MEDICINE OF THE DISTRICT.—At a recent meeting of the directors of the school the recommendations of the Curriculum Committee to arrange the subjects and assign the professors as follows was adopted: Gynecology, Dr. H. L. E. Johnson; Surgery, Orthopedics, Skin and Venereal Diseases, Drs. James Kerr, J. Ford Thompson and Thomas E. McArdle; Practice of Medicine and Physical Diagnosis, Drs. W. W. Johnston, Samuel C. Bussey, G. Wythe Cook, G. Boyd Harrison and Middleton F. Cuthbert; Diseases of Children, Drs. Samuel S. Adams and Geo. N. Acker; Diseases of Throat, Nose and Ear, Dr. Chas. W. Richardson; Diseases of Eye, Dr. W. Holland Milmer; Diseases of the Nervous System, Dr. Edmund L. Tompkins; Obstetrics, Drs. J. Foster Scott and Henry D. Fry; Pathology, Bacteriology, etc., Dr. Edward M. Parker.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 238th meeting of the Society was held on the 3d instant. Dr. Kelley read a paper on "Fibroid Tumors of the Uterus with Pregnancy." He gave the history of some cases and presented a large fibroid uteri containing a small fetus which he had removed by abdominal section. Dr. Deale read a paper on "Movable Kidney," and reported some cases. Full and interesting discussions followed the reading of each paper. Dr. H. L. E. Johnson presented a colloid cyst of the left ovary and a smaller cyst of the right ovary, successfully removed from a woman 54 years of age.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from December 28, 1895, to January 3, 1896.

Major James C. Worthington, Surgeon, leave of absence granted on surgeon's certificate of disability is extended six months on account of sickness.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending January 4, 1896.

Asst. Surgeons M. S. Guest and C. P. Bagg, ordered to examination for promotion.

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the sixteen days ended December 31, 1895.

Surgeon H. R. Carter, granted leave of absence for twelve days, Dec. 17, 1895.

P. A. Surgeon L. L. Williams, granted leave of absence for fifteen days, Dec. 30, 1895.

P. A. Surgeon W. P. McIntosh, to proceed from Boston, Mass., to Louisville, Ky., and assume command of Service, Dec. 28, 1895.

P. A. Surgeon B. W. Brown, granted leave of absence for nine days, Dec. 17, 1895.

Asst. Surgeon Emil Prochazki, to proceed from Buffalo, N. Y., to Detroit, Mich., for duty, Dec. 28, 1895.

Asst. Surgeon A. R. Thomas, to proceed from St. Louis, Mo., to Boston, Mass., for duty, Dec. 28, 1895.

Asst. Surgeon H. S. Cumming, granted leave of absence for sixteen days, Dec. 16, 1895. Leave of absence extended four days, Dec. 26, 1895.

BOARDS CONVENED.

Board to revise regulations regarding uniforms, Surgeon Fairfax Irwin, chairman, P. A. Surgeons C. E. Banks and B. W. Brown, recorders, Dec. 17, 1895.

Board for the examination of officers for promotion and candidates for admission to the Service, to meet in Washington, D. C., Feb. 10, 1896, Surgeon George Purviance, chairman, Surgeons H. W. Austin and H. R. Carter, recorders, Dec. 30, 1895.

Change of Address.

Beebe, C. E., from Woodland to Watsonville, Cal.

Blitz, A., from Indianapolis, Ind., to Rooms 21-22, Sidle Blk., Minneapolis, Minn.

Coe, H. W., from 138 E. 29th Street to 115 W. 49th Street, New York, N. Y.

Frisby, E. G., from 229 Geary Street to 803 Sutter Street, San Francisco, Cal.

Hopkins, W. E., from 533 Sutter Street to 803 Sutter Street, San Francisco, Cal.

Hunt, Florence W., from 236 Michigan Avenue to Lexington Hotel, Chicago, Ill.

Rogers, D. F., from Marceline, Mo., to Ottawa, Kan.

Sims, S. N., from St. Joseph, Ill., to Philadelphia Policlinic, Philadelphia, Pa.

Werner, O. E., from Brillion, Wis., to 517 W. Chestnut Street, Louisville, Ky.

Wood, Horatio F., from Masonic Temple to 1003 Reliance Building, Chicago, Ill.

LETTERS RECEIVED.

Allnut, Henry, St. Paul, Neb.; Armstrong, S. T., Asbury Park, N. J.; Arnold, H. A., Ardmore, Pa.

Barr, Martin W., Elwyn, Delaware County, Pa.; Butler, F. C., Malden, Mass.; Buckmore, J. H., Evanston, Ill.; Bellamy, B. C., Stockton, Cal.; Bartholomew, Geo., New York, N. Y.; Bell, A. N., Brooklyn, N. Y.; Buxton, L. Haynes, Guthrie, Okla. Ter.; Bellwood, W. S., Alliance, Neb.; Blitz, A., Minneapolis, Minn.

Curfman, G. W., Denver, Colo.; Chicago Post-Graduate Medical School, Chicago, Ill.; Cook, G. F., Oxford, Ohio; Cone, Andrew, New York, N. Y.; Cushing, H. K., Cleveland, Ohio; Carr & Manning, Durham, N. C.; Chambers, J. H. & Co., St. Louis, Mo.; Cochran, Jerome, Montgomery, Ala.; Clarke, Almon, National Home, Wis.; Columbus Phaeton Co., Columbus, Ohio.

Duffield, H. F. (2), Pittsfield, Ill.; Daigneau, F. E., Austin, Minn.; Davis, D. G., Washington, D. C.; Davis, G. S., Detroit, Mich.

Enke, Ferdinand, Stuttgart, Germany; Elliott, W. H., Savannah, Ga.; Eschimer, Dr., Chicago, Ill.; Eskridge, J. H., Chicago, Ill.; Edwards, W. M., Kalamazoo, Mich.

Franklin, C. P., Philadelphia, Pa.; Fernandez, J. D., Jacksonville, Fla.; Fred Macey Co., The, Grand Rapids, Mich.

Gregory, L. L., Chicago, Ill; Grady, Z. T., La Fayette, Ala.; Gilchrist, T. C., Baltimore, Md.

Haralson, H. H., Forest, Miss.; Horlbeck, H. B., Charleston, S. C.; Horner, Frederick, Marshall, Va.; Holtgrewe, F. W., St. Louis, Mo.

Jenkins, J. F., Tecumseh, Mich.

Kenyon News & Postal Sub. Co., (2), Chicago, Ill.; Kessinger & Kessinger, Sanborn, Ind.

Lemen, L. E., Denver, Colo.; Lichenwallner, J. B., Springfield, Neb.; Lord & Thomas, Chicago; Lillard, Benj., New York, N. Y.; Lehn & Fink, New York, N. Y.; Lovenson, M. L., Chicago; Longman, Green & Co., New York, N. Y.

Manley, Thos. H., New York city; Marsh, W. Q., Sierra Mojada, Mexico; Mullan, E. A., Chicago, Ill.; McEuroe, J. F., Schenectady, N. Y.; Moore's Newspaper Subscription Agency, Brockport, N. Y.; Murray, J. A., Cincinnati, Ohio; Meyer Bros. Drug Co., St. Louis, Mo.; Macey, Fred Co., Grand Rapids, Mich.; Moran, Jas., New York, N. Y.; Morice, J. Henry, Philadelphia, Pa.

Ozone Co., Chicago, Ill.; Payne, Jno., Hillman, Ala.; Pugh, F. H., Bryan, Ohio; Peacock Chemical Co., St. Louis, Mo.; Perkins, L. J., Pendleton, Ore.

Raines, D. F., Manistique, Mich.; Raeder, J. W., Wilkes Barre, Pa.; Read, E. W., Manden, N. D.; Reddish, G. M., Somerset, Ky.; Reder, Henry, Aurora, Ill.; Regar, G. H., Co., Philadelphia, Pa.; Robinson, Byron, Chicago, Ill.; Rumbold, T. F., St. Louis, Mo.; Rhoden, J. C., Chicago.

Schulke, M., Chicago, Ill.; Selden, Julia S., Norfolk, Va.; Sims, S. N., Philadelphia, Pa.; Stearns, F. & Co., Detroit, Mich.; Sternberg, Geo. M., Washington, D. C.

Truax, Chas., Greene & Co., Chicago, Ill.; Thomson, St. Clair, London, England; The G. F. Harvey Company, Saratoga Springs, N. Y.

Woodward, A. P., San Francisco, Cal.; Wyman, Hal C., Detroit, Mich.; Winslow, J. R., Balitmore, Md.; Werner, O. E., Louisville, Ky.

Zumo Pharmacal Co., St. Louis, Mo.